

Pacific Seabird Group



BULLETIN

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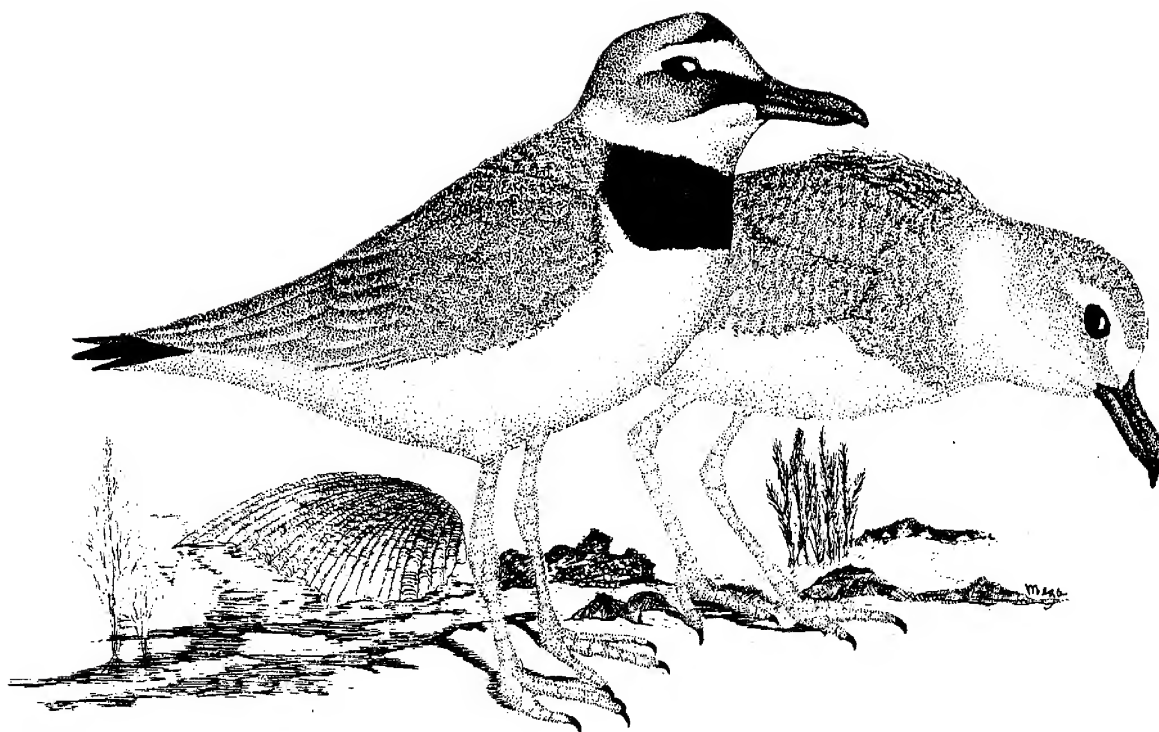
PACIFIC SEABIRD GROUP
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THE CHAIR'S PAGE

A very Happy New Year to all in PSG. Yes, it's that time of year again: reflecting on past accomplishments and shortcomings, groaning about too many calories taken in during a long holiday season, trying to pare down that list of things we ought to do to better ourselves in the coming year. It seems like a list of only one or two *firm* resolutions ought to be manageable. Yet we often can't reflect back on last year's resolutions and be satisfied that we made real progress. I've even learned to forget which ones I made so I can't hold myself responsible. Well, I've come up with a solution: resolve to do something that is satisfying when done, yet easy to accomplish! Nobody ever said that these resolutions had to be impossible to carry through. Think how good it will feel next New Year's Day to reflect on a resolution that we actually carried out!

Naturally, I have a further suggestion: You wouldn't have read this far unless you had a more than passing interest in seabird research and conservation in general and the Pacific Seabird Group in particular. Why not resolve to find a way to be more involved in PSG? Write a letter or two to local agencies or managers to find out what is being done about the seabird situation in your own backyard? Then, tell your regional representative or the chair of the appropriate standing committee what you found out. Remember that hair-brained fund raising idea you had? Why not run it by Judith Hand or Lora Leschner and see if it flies? Oh yes, and that note you forgot to write to the regional rep about last year's research results and the report you just completed. That can't take more than 30 minutes, but it will tell us all how you spent last summer vacation. Maybe it's time to take on a bit of the load for arrangements for one of the annual meetings. Perhaps (perish the thought) one of the standing committees has an open slot or (gad) one of the elected offices could use your special talents.

A truly amazing aspect of the annual meeting in La Paz was the attendance at the meetings of the various standing committees. If you weren't there, it may be hard to imagine almost 30 people taking part in a meeting of the committee on seabird-fisheries interactions - a committee that as late as three years ago still wondered aloud about its reason for existence. And all the meetings were the same way. Why? Well, people weren't staying in the hotel because of poor weather or unpalatable surroundings! I believe that PSG members had important things to say about important issues concerning our Group. The issues seem to be getting more numerous and more complex with the passage of time. More members are directly affected and in more parts of the world. At the very least, we now are concerned with important conservation issues in the Aleutians, Bering Sea, California, Mexico, the central Pacific, the Indian Ocean, and the northeast Atlantic. A major effort is underway to prepare pamphlets on human disturbance of seabird colonies and roosts. At the same time, we are trying to accelerate funding of our Endowment Fund, to prepare for a 1987 PSG symposium on alcid biology, to plan for a symposium on high-tech advances in research, and perhaps to develop an information session for decision-makers in Washington, D.C. The list goes on and on.

Back to that resolution. Involvement in any of these or numerous other aspects of PSG activities takes only a little time but adds so much to our collective effort. Let's all resolve to move PSG involvement up a few notches on that short list. PSG activities are moving so rapidly now that we each need to make a small effort to keep from being left behind. There are lots of ways to make our voices heard, but they all start with a phone call or a letter. And an easy resolution. Come this time next year, I'm planning to feel good about that little extra effort. Give it a try!

Ken Briggs

PACIFIC SEABIRD GROUP NEWS

Proposed Minutes of the Executive Council Meeting, 10 December 1986, La Paz, Baja California Sur, Mexico

1. Lora Leschner opened the meeting at 13:55. A quorum was present consisting of Lora Leschner, Ken Briggs, Malcolm Coulter, Dan Anderson, Ed Murphy, Michael Fry, Stewart Fefer, Enriqueta Velarde, Mark Tasker, Palmer Sekora, Judith Hand, and Zoe Eppley. Lora Leschner held proxies for Doug Siegel-Causey, Craig Harrison, Ron Naveen, Hans Blokpoel, and Paul James. Kees Vermeer held proxy for Gary Kaiser. Scott Hatch held proxy for Tony DeGange, and Eric Cummins held proxy for Steve Spiech.
2. Hatch read the minutes from the 1985 Executive Council Meeting in San Francisco. A motion was made to accept the minutes, and it was **SECONDED** and **PASSED**.
3. Leschner presented the treasurer's report from Siegel-Causey (see elsewhere in this issue). There was no net change in membership during the last year. The Endowment Fund currently has a balance of \$10,015.18 and is earning interest at 9.9 percent annually. Based on the results of last year, the brochures still seem the best way to reach potential new members.
4. Hand reported that all papers have been reviewed from last year's gull symposium. An issue of *Studies in Avian Biology* will contain all abstracts of papers presented at the meeting plus the papers that passed the review process. Editor Frank Pitelka has not yet indicated a date for final publication. Hand remarked that there was concern to keep the size of the publication down because of publication costs; however, enough papers were rejected so that publication costs are manageable. Briggs asked for information on PSG's contribution to costs of publishing the gull symposium. Hand stated that PSG contributed \$1,500.00 while the Colonial Waterbird Group (CWG) contributed \$2,000.00. Hand contributed \$500.00 of her personal funds to bring the PSG contribution to \$2,000.00. It was asked of the Cooper Society (COS) that they share profits from sales of the gull symposium on a pro rata basis with PSG and CWG, but COS declined the proposition at their annual meeting.

Coulter indicated that proceedings of last year's wetland symposium will be published as a special edition of *Colonial Waterbirds* in December 1986.

5. Conservation Issues: Velarde gave an update on the proposed preserve at Los Angeles Bay in Baja California. The sardine fishery is rapidly expanding and is targeting small pre-reproductive fish. The preserve is proposed to include many of the most important seabird nesting islands. Velarde stated that a proposed alternative to the sardine harvest would be to substitute *Artemia* in the production of fish meal. Fry asked the status of the effort to create a fisheries preserve in Los Angeles Bay. Velarde responded that it will be a very long-term effort because the government supports the fishery. There is presently no adequate population model for sardines for use in managing the fishery.

Anderson gave an update on the hunting issue in Elkhorn Slough near Moss Landing, California. The California Department of Fish and Game has decided to open the area to hunting on December 1, no matter what. No further action by PSG is proposed at present.

Leschner reported on the issue of delisting the Brown Pelican. PSG sent letters to three Fish and Wildlife Service offices in support of delisting but has received no response.

Leschner also reported that letters had been sent to three Fish and Wildlife Service offices (Washington, D.C. office, Portland, WA office, Anchorage, AK office) expressing concern for reduced funding for seabird research and requesting information on funding levels. The letter will also be sent to other federal agencies (e.g., Minerals Management Service) and also possibly the Canadian Wildlife Service.

Divoky suggested that PSG try to reconstruct funding levels for seabirds in federal agencies over the last 10 years. It was pointed out by several council members that this would be difficult to do.

6. Historian's Report: Divoky stated that he does not like taking pictures and, if that is the main function of the historian, then perhaps someone else should assume the responsibility at the annual meetings.
7. New Business: Palmer Sekora reported on the election results. One hundred and thirty-one ballots were received.

Chair-elect - Scott Hatch
Treasurer - Doug Siegel-Causey
Secretary - Tony DeGange
Regional Representatives
Alaska - Joel Hubbard
British Columbia and Washington - Kees Vermeer
Oregon and Northern California - Roy Lowe
Pacific - Daniel Moriarty
Latin America - Juan Guzman Poo

For the upcoming elections, positions will be open for Chair-elect, Treasurer, Secretary and Regional Reps for Central California, Southern California, the Northeast, the Southeast, the Great Lakes, and Inland.

Hand pointed out that prospective Treasurers should be willing to serve for at least three years.

8. Fefer brought up the fact that regional reps from some of the larger regions have trouble producing regional reports because they do not always receive information from the far corners of the region. He asked whether or not we should redefine the scope of the regions again. Hand said no: it is better to be sure of having a quorum at meetings by leaving the regions large and by electing regional reps that are likely to attend annual meetings.
9. The question was raised whether PSG should retain connections to organizations, issues, and people outside the Pacific region, e.g., South Africa and Europe. Fry MOVED that PSG join the other seabird groups so that we receive their publications and learn firsthand what is happening elsewhere. The motion was SECONDED and PASSED. It was decided that the editor will subscribe to the other seabird groups and be reimbursed by PSG. The editor may rely on regional reps to abstract pertinent information from the other bulletins for inclusion in the PSG Bulletin.

10. Siegel-Causey in a letter to Leschner said that PSG averages about \$4,500.00 in the bank. He suggested that a conservative spending policy would be to spend 2-3k annually. Several proposals for expending funds were made:
- (a) Hand recommended that PSG outlay funds next year to offset publication of Sealy's alcid symposium.
 - (b) Siegel-Causey suggested that PSG cover some travel costs of graduate students at PSG annual meetings.
 - (c) Coulter said that PSG should cover costs of mailing the Latin American newsletter.

Further discussion of budget proposals were tabled until later.

11. Leschner remarked that symposia funding is a recurrent problem. It was felt by those in attendance at the Executive Council Meeting that PSG should tie funding to proposed symposia at an early stage rather than dealing with the problem after the fact.
12. The seabird techniques manual was discussed. Possible topics for inclusion are banding and marking, telemetry, monitoring and censusing, and physiological monitoring. Leschner will look into possible cooperation with the National Wildlife Federation. A project of this magnitude may require the services of a full-time editor as well as funding to cover that position's salary and publication costs. Joe Strauch was suggested as an editor but he indicated that he would not have time.
13. Coulter reported that two issues of the Latin American Newsletter had been produced to date. David Duffy has taken the lead on the publication which includes such items as conservation and research issues and meeting announcements. The newsletter is sent to between 100 and 200 Latin Americans, and Coulter has received numerous additional requests.
14. No annual report from the International Council for Bird Preservation (ICBP) has been received for inclusion in the Bulletin. John Croxall said that he drafted the majority of the ICBP report and will make a copy available to the Bulletin editor.
15. Coulter suggested the end of May and mid to late September as publishing dates for the Bulletin. Deadlines for the spring and fall issues would be 15 January and 15 June, respectively. Coulter stated that one of the biggest complaints of members is tardy receipt of the Bulletin. It has already been decided to send the Bulletin first class to outlying members. There has been some difficulty in getting the Bulletin out on time, but Coulter believes the present situation is satisfactory.
16. Future Symposia: Sealy, in a letter to Leschner, stated that, as of 1 November 1986, he had received 18 manuscripts representing 31 authors for the alcid symposium. Two manuscripts were in hand; the remainder he hoped would be refereed and revised by the time of the annual meeting. He asked that PSG provide funds for publication.

Divoky reported that the National Oceanic and Atmospheric Administration (NOAA) is no longer interested in sponsoring a symposium on seabird monitoring. Such a symposium at the 1988 meeting will have to be an independent effort by PSG and CWF if it is to occur.

Hatch suggested high tech applications in marine bird research as a possible symposium topic. Croxall and Tasker pointed out that this idea has come up in other organizations as well and suggested that it might be a possible topic for a symposium at the International Ornithological Congress in 1990.

Divoky suggested that the joint PSG-CWG meeting in 1988 in Washington, D.C. include a four-hour session on birds as indicators of marine environments, followed by a social event for the benefit of politicians and other D.C. notables.

17. Future Meetings: Next year's meeting will be held from 16-20 December 1987 at Asilomar near Monterey, California. Local Committee Chair Dave Lewis reported that a cocktail hour at the Monterey Aquarium, a whale-watching trip, and a bird-watching trip to Elkhorn Slough are being considered as possible events.

PSG received a letter from Alan Burger of the Bamfield Marine Lab in British Columbia requesting that PSG consider the station as a possible site for a future meeting. It was pointed out that a major problem with that site is that the auditorium holds only 80 to 100 people. The Council decided that the small auditorium was a fatal shortcoming. Kees Vermeer suggested that alternative sites in British Columbia exist at Victoria and Vancouver. He will look into future meeting sites in Canada.

Stewart Fefer suggested New Zealand as the meeting site two or three years from now.

It was pointed out that the proposed timing of the joint PSG-CWG in Washington, D.C. in 1988 was poor because of the changing of administrations following the national elections. The meeting should perhaps be set back a full year or postponed until fall 1989. Leschner will call Bill Southern and get the CWG view on this proposed change.

18. Anderson submitted an example of the application that is going to be required for work in Mexico in the future. It may now be a 6-12 month process to obtain a permit for research in Mexico because you will have to go through Mexican and U.S. State Departments. A summary of this paperwork will go into the PSG Bulletin and a copy into the Chair's permanent file.
19. There was some confusion expressed over who is representing PSG to the ICBP. Croxall advised the Council that Ralph Schreiber is Chair of the Seabird Specialist Group and does not appear to represent PSG to ICBP. Ron Naveen is the PSG representative to the U.S. Section of ICBP. If PSG is an institutional member of the U.S. Section, then we need to have a second representative. There was confusion as to whether Ralph Schreiber was the second representative. Hand MOVED that the incoming Chair determine who is representing PSG at the U.S. Section and, if a second member is needed, that Malcolm Coulter be that member. The motion was SECONDED and PASSED.
20. Leschner read Ron Naveen's report from the U.S. Section of the ICBP. He expressed some concern that the information collected by the U.S. Fish and Wildlife Service on seabird mortality in Japanese salmon gillnets is not accurately reflected in the DEIS for reauthorization of the Japanese take of Dall's porpoise. He also stated that the draft report on seabird mortality in Japanese gillnets was difficult for public interest groups to obtain (see report from Naveen elsewhere in this issue).

21. Croxall reported that the minutes from last year's meeting were not entirely correct. ICBP is producing a supplement to, not a revision of, their conservation volume.
22. Reports of Standing Committees: Seabird and Fisheries Interaction Committee - a meeting of committee members earlier in the day touched on the following topics:
 - (a) Sandlance in the Northeast - Dave Nettleship will prepare a paragraph for the Bulletin.
 - (b) Penguin die-off in the Falkland Islands, originally attributed to overfishing, is attributable to disease.
 - (c) Resolution on Aleutian gillnet mortality of seabirds.
 - (d) Gillnet mortality of loons, other seabirds, and porpoise in the northern Gulf of California.
 - (e) Offshore jurisdiction over marine birds - Vivien Mendenhall will investigate how far out the Fish and Wildlife Service has jurisdiction over marine birds.
 - (f) Fisheries and distribution of juvenile fishes - Ed Murphy will draft a letter to the National Marine Fisheries Service relating this issue to seabirds.

Leschner read a resolution supporting Senator Ted Stevens (R-Alaska) effort to restrict and control high-seas driftnet fishing in U.S. waters. It was MOVED to adopt the resolution as modified. The motion was SECONDED and PASSED.

Conservation Committee - Art Sowls summarized efforts of the previous year and proposed work for the new year.

- (a) All prior PSG resolutions and policy statements were compiled and made available.
- (b) Members of the committee are in the process of putting together a "disturbance" brochure directed at tourists and others who may visit seabird colonies.
- (c) Letters with the Chair's signature were sent as follows:
 - to the Fish and Wildlife Service re: the scoping process for the Alaska Maritime National Wildlife Refuge.
 - to the National Marine Fisheries Service re: the seabird portion of the DEIS for reauthorization of the incidental take of Dall's porpoises.
 - to Senator Dan Evans (Washington) re: transfer of Refuge lands to the National Park Service on the Washington State coast.
 - to the Australian Government re: phosphate mining on Christmas Island in the Indian Ocean.
- (d) Action in the form of official letters was proposed for the following:
 - threat of rat introduction to Christmas Island in the Pacific
 - gillnet-related mortality of Common Murres in California.
 - marine preserve in Los Angeles Bay, Baja California.
 - establishment of park on South Moresby Island, British Columbia.
 - support of a national wildlife refuge at Bowerman Basin, Grays Harbor, Washington.

The Executive Council Meeting was recessed at 17:30, and plans were made to reconvene at 17:00 on 11 December.

Proposed Minutes of the Executive Council Meeting, 11 December 1986, La Paz, Baja California Sur, Mexico

1. Leschner called the meeting to order at 17:20. A quorum was present with the same individuals participating as in the earlier meeting.
2. Fund Raising Committee: Hand stated that the Endowment Fund needs about \$10,000.00 per year to achieve the goal of \$100,000.00 in a timely manner. Several suggestions were offered as new fund-raising ideas. Leschner has sent letters on behalf of PSG to four major corporations. It was announced that a raffle will be held at the La Paz meeting. At next year's meeting in Asilomar, it was suggested that PSG provide seabird experts for interpretation on private boats. In addition, it was suggested that an evening of seabirds be held at the Monterey Aquarium to attract local people who may wish to donate to PSG. The evening could include short presentations by local seabird researchers followed by a main speaker.

Fry noted that there are a few companies in central California that give seminars on fund raising. He suggested sending a member of the Fund Raising Committee to the seminar. A brief discussion ensued on whether most financial support comes from "ordinary" people or from major corporations.

Hand stated that the Fund Raising Committee needs two volunteers.

3. Palmer Sekora reported on nominations he had already received for the upcoming election. They were:
 - Chair-elect - Mike Fry
 - Treasurer - Doug Siegel-Causey
 - Secretary - Tony DeGange and Beth Flint
 - Regional Representatives
 - Central California - Mike Fry and Jean Takekawa
 - Southern California - Zoe Eppley and Barbara Massey
 - Southeast - Ron Naveen and Roger Clapp
 - Northeast - Mark Tasker and Dave Nettleship
 - Inland - Hans Blokpoel, Tony Gaston, and Paul Sievert
4. A resolution was introduced on Marbled Murrelets. After discussion and revision, it was MOVED to accept the resolution. The motion was SECONDED and PASSED unanimously (see resolution elsewhere in this issue).
5. Harry Carter, Jean Takekawa, and Mike Fry drafted a letter to the California Department of Fish and Game regarding gillnet fishery closures and effects of the fishery on Common Murre populations in California. Briggs read the letter and, after discussion and minor revision, it was MOVED that the Executive Council accept the letter. The motion was SECONDED and PASSED.
6. It was MOVED, SECONDED, and PASSED that the Executive Council thank:
 - (a) Lora Leschner for dedicated service as Chair
 - (b) Judith Hand for contributing \$500.00 towards publication of the proceedings of the gull symposium

- (c) the local committee and the Baja California Sur government for their hospitality and efforts in putting on a fine meeting. In appreciation, the Executive Council voted to donate \$400.00 to the university for seabird research equipment and books.
7. The following items were introduced in a budget resolution to provide some guidelines to the incoming Chair on disbursing money:
- (a) ICBP dues - \$400.00
 - (b) Subscriptions to other seabird group bulletins - \$50.00
 - (c) Alcid symposium - \$750.00, first of two equal payments
 - (d) Latin American Newsletter - \$100.00
 - (e) Disturbance Pamphlet - tabled until some progress is made by Conservation Committee.
 - (f) Fund raising seed money - \$800.00 and \$300.00 seminar expenses
 - (g) Gift to local committee - \$400.00
 - (h) George Divoky - \$75.00 reimbursement for making long-distance phone calls to Washington, D.C.

It was MOVED to accept the budget resolution. The motion was SECONDED and PASSED.

8. Divoky made calls to Stan Senner and Pete Myers on the east coast of the United States to discuss timing for the 1988 joint PSG-CWG meeting. Senner suggested that the best timing would be early 1989 from January to March. Lora Leschner will contact CWG regarding moving the date of the meeting to early 1989, preferably in mid to late January.
9. At 18:45, a motion was made to adjourn the Executive Council Meeting, and it was SECONDED and PASSED.

My thanks to Scott Hatch for taking notes at the Executive Council Meetings.

Respectfully submitted,
Anthony R. DeGange, Secretary



TREASURER'S REPORT - JAN-NOV 1986

CARRYOVER FROM 1984

(Checking: \$951.36; Savings: \$2,593.10; Endowment: \$5,468.03) \$11,921.21

INCOME

Dues	\$3,710.90	(56.2%)	
Sale of Back Issues	215.00	(3.3%)	
Contributions	810.00	(12.3%)	
Revenues from Annual Meeting	1,707.59	(25.9%)	
Interest	161.87	(2.5%)	6,605.36

EXPENSES

Accounting fees	30.06	(0.9%)	
Supplies	499.75	(14.3%)	
Postage	455.78	(13.1%)	
Printing	1,104.20	(31.6%)	
(SREL acct unpaid, est.)	1,400.00	(40.1%)	(71.8%)
			3,489.79

ACCOUNT BALANCES (as of 31 Nov 1986)

(Checking: \$251.39; Savings \$5,000.02; Endowment: \$10,015.88) 15,267.29

Net increase in worth over 1985: \$ 3,346.08

Endowment Fund

The current return on investment is running about 9.9%, which is quite good considering the conservative nature of the mutual fund (Dean Witter Government Securities Trust). Our present fund balance stands at \$10,015.88.

Life Memberships

Joel Hubbard has become our newest Life Member since the list of founders was published in vol. 13(1). Although each Life Member no longer contributes to our dues income, the increase in our endowment base more than makes up this difference in lost revenues. Therefore, the advantages of Life Memberships should constantly be stressed and advertized to the general membership.

Membership

The number of new members equals the number of resignations and deletions through nonpayment of dues: our net change is zero. The brochures continue to be the primary means of attracting new members.

Douglas Siegel-Causey

1987 ANNUAL MEETING

The 1987 annual meeting of the Pacific Seabird Group will be held 16-20 December 1987 at the Asilomar conference grounds, Pacific Grove, California. In addition to general papers and poster sessions, the scientific program will feature a symposium on "Alcids in the Marine Environment," organized by Spencer Sealy and slated for publication in *Studies in Avian Biology*. Field trips will likely include a pelagic bird- and whale-watching excursion on Monterey Bay and a day for viewing marsh birds in the Elkhorn Slough. By special arrangement, PSG members and other participants in the meeting will also enjoy an evening at the Monterey Bay Aquarium. Serving on the committee for local arrangements are Dave Lewis, Breck Tyler, and Alan Baldridge (c/o Coastal Marine Laboratory, University of California, Santa Cruz, CA 95064); Scott Hatch is program chairman (contact Alaska Fish and Wildlife Research Center, 1011 East Tudor Road, Anchorage, AK 99503). A detailed announcement and call for papers will be mailed in July.

COMMITTEE ON SEABIRDS AND FISHERIES

The Committee met in La Paz, Baja California, on December 10, 1986, prior to the main PSG Conference. The meeting was well attended. Vice-chairman Dan Anderson should be thanked for conducting the meeting.

A variety of topics was discussed. Some issues were referred from the Conservation Committee for review and comment. These included a draft resolution favoring Federal legislation to improve efforts to monitor, assess, and reduce the adverse effects of driftnets off Alaska. Similarly, the Conservation Committee is considering a resolution regarding application of the Migratory Bird Treaty Act to the U.S. Extended Economic Zone, especially regarding fishery-induced seabird mortality. Vivian Mendenhall is providing important liaison between our two Committees on this issue. In general, the Committee on Seabirds and Fisheries and the Conservation Committee should benefit mutually from working together in areas of common concern.

Some topics introduced for future Committee discussion include (1) Gillnet mortality in the midriff of the Gulf of California (Dan Anderson), (2) the impact of pollock fisheries on dynamics of Alaskan seabirds (Ed Murphy and several others), (3) impacts of tuna fisheries in the Pacific and the Mediterranean (Sandy Bartle and Stewart Fefer), and (4) mortality of albatross from long-line operations near the Crozet Islands (Sandy Bartle). If these, or other cases of fishery-seabird interactions, are felt to be important, knowledgeable people must write down their thoughts and information in order for the Committee to function. The Committee Chairman will attempt to distribute materials to the members and to anyone who wishes to be included in the exchange of information (send a note to Alec MacCall, Southwest Fisheries Center, P. O. Box 271, La Jolla, CA 92038).

Seabird and Sand Lance Interactions off Southern New England

A manuscript being prepared by Richard Veit, Barbara Braun, and Blair Nikula discusses a fascinating relationship between increased sand lance (*Ammodytes* spp.) abundance and wintering seabirds off Cape Cod. These authors also presented a poster at the PSG meeting in La Paz. Sand lance began increasing in New England waters about 1974 and, by 1980, abundance had increased several hundredfold. This increase in sand lance coincides with a severe decline of herring, leading many fishery biologists to consider this a case of fishery-induced species replacement.

Veit, et al. document the changes in New England seabird abundances from 1962 to 1985. Some of the best seabird abundance data are for wintering birds recorded in the Christmas Bird Counts. Abundances of herring gulls wintering off southeastern New England increased severalfold by the 1980s. Whereas less than 200 black-legged kittiwakes were seen off southern New England in winters from 1962 to 1977, by the winter of 1984-85 approximately 100,000 of these birds--a substantial fraction of the North American breeding population--were wintering off Cape Cod. Also, Veit et al. document that many less numerous species of seabirds have been more common off Cape Cod in recent years.

Conditions in 1986 provide an ironic sequel to this story. The Manomet Bird Observatory (MBO) has been censusing seabirds and marine mammals cooperatively during summer groundfish surveys conducted by the National Marine Fisheries Service, Northeast Fisheries Center (Note: This kind of cooperation should be recognized as positive interaction). NMFS biologist Steve Murowski reports that, in 1986, there was a very large decrease in sand lance abundance in the area just north of Cape Cod (Stellwagen Bank), despite the fact that sand lance remain virtually unfished. Mike Payne of the MBO confirmed reports by many observers that both the seabirds and the whales (fin and humpback) had completely abandoned their normal feeding areas on Stellwagen Bank, north of Cape Code, and apparently moved offshore toward George's Bank. The 1986-87 Christmas Bird Count should provide an especially interesting data set.

Fishery biology does not yet possess sufficient understanding of interactions among fish species to confirm cases of apparent species replacement as the result of competitive release. On the other hand, it is known that many fish populations undergo substantial natural fluctuations over time scales of decades. Thus, it is reasonable to assume that many species of seabirds are somewhat "preadapted" to coping with temporal and geographic changes in food abundance similar to those resulting directly and indirectly from fishery activity (of course, no species is adapted to permanent loss of a food source). This plasticity of seabird responses, while presumably benefitting the birds themselves, makes study of seabird-fishery interactions especially difficult. Case histories such as that of *Ammodytes* off New England are vital to our gaining some understanding of this subject.

Penguin Mortality in the Falkland Islands

Rumors of a Rockhopper penguin "dieoff" in the Falkland Islands have been circulating, along with hypotheses that the growing commercial fisheries in that area may have created a critical food shortage. John Croxall of the British Antarctic Survey (BAS) was able to provide an authoritative update of the situation and said that several unpublished reports are now available. Although the immediate cause of death appears to have been starvation, researchers have identified a viral disease which is suspected to have brought about the situation (see Conservation Section). The fishery connection is also less likely because the suspect fisheries are exploiting groundfish, whereas the penguins eat mostly squid and pelagic crustaceans. The BAS is presently conducting a survey of penguin diets, and the results of the study should help clarify the potential influence of fishery on penguin abundance. None of the several other local species of birds showed evidence of acute food shortages. Croxall also reports that the numbers of breeding penguins have now basically recovered.

Alec MacCall

CONSERVATION COMMITTEE

The Conservation Committee met on December 10, 1986, in La Paz, Baja California, prior to the Annual PSG meeting. Art Sowls led the meeting for Jay Nelson who was unable to attend. After the committee meeting, there was an informal workshop to discuss the disturbance pamphlet.

Actions during 1986

- A letter was sent to the National Marine Fisheries Service reviewing a draft EIS on the incidental take of Dall's Porpoise by the Japanese salmon fishery. Seabirds are also taken and our comments should improve that section of the report.
- A letter was sent to the U.S. Fish and Wildlife Service expressing PSG's concerns related to the delisting of the brown pelican from the endangered species list.
- A letter was sent to the U.S. Fish and Wildlife Service, Washington, D.C., and west-coast regional offices expressing PSG's concern with declining budgets for seabird and other nongame programs.
- A letter was sent to Washington Senator Dan Evans expressing PSG's concern about the transfer of Quillayute Needles and Flattery Rocks National Wildlife Refuge to Olympic National Park. PSG is concerned that the monitoring of the wildlife populations will be less likely under an agency whose responsibility to wildlife is not as direct as that of the U.S. Fish and Wildlife Service. We are also concerned with the precedent of the land transfer of a refuge without extensive public review.
- A letter was sent to the Australian government expressing our concern about the phosphate mining at Christmas Island (Indian Ocean). It could have devastating effects on nesting seabirds and coastal rainforest habitat (See PSG Bulletin Vol 13:2:93).
- California Department of Fish and Game opened Moss Landing lagoon near Monterey California to duck hunting December 1, 1986. PSG members had protested the opening since it is an important roosting area for brown pelicans which could be driven away by the disturbance. PSG will take no further action on this issue at this time.
- A letter was sent to the Alaska Maritime NWR planning team of U.S. Fish and Wildlife Service, who are now in the process of drafting management alternatives for this very important seabird refuge. PSG expressed six points: (1) the need for continued population monitoring, (2) providing better interpretive opportunities, (3) need to study quantitative interactions between fisheries and fish-eating seabirds, (4) need for FWS to consider subtidal habitats, (5) need to acquire important seabird islands not already in the refuge, and (6) the need for FWS to address the broad issue of seabird conservation and not a narrow "real estate" orientation to seabird management.

New and continuing conservation issues

- The disturbance brochure "workshop" came to an unanimous decision of what format and how to proceed on the disturbance brochure. It will be directed toward tourists and be the size of the PSG leaflet. Emphasis will be on illustrations and photos, with a minimum of

text. The Alaskan conservation PSG subcommittee will proceed with a mock-up for the Alaska pamphlet. Conservation committee members from other regions will review it and design similar pamphlets appropriate for their regions. The pamphlet will have a "generic" side that will be the same on all regions pamphlets. This should cut printing costs. The other side will be specific to each region. We decided PSG could not fund printing costs since large numbers would have to be made. We will seek funds from federal agencies for printing.

- PSG passed a resolution on driftnet impact legislation (U.S. Senate Bill S.2611 and U.S. House Bill H.R. 5208). The resolution is presented elsewhere in this Bulletin.
- A resolution was passed on Marbled Murrelet management concerns because of cutting of old growth forest (see resolution elsewhere in this Bulletin).
- A question was raised about the seaword jurisdiction of the migratory bird treaty and U.S. Department of Defense compliance. Vivian Mendenhall is looking into the issue.
- Continued murre declines along the central California coast due to gillnet mortality are of concern. A letter was drafted and sent to California Department of Fish and Game expressing PSG concern that murre mortality be stopped immediately. Harvey Carter and Ken Briggs deserve special thanks for their quick action on this issue.
- The Alaska Maritime NWR planning process is continuing. The U.S. Fish and Wildlife Service has come up with a series of management options. The Alaska conservation PSG subcommittee will review these and submit written comments. Anyone interested in more information of the planning of this refuge should write: USFWS, 1011 Tudor Road, Anchorage, Alaska 99503.
- South Moresby Island in British Columbia, Canada, is being considered for a Provincial Park. The park would include several important seabird colonies, and its establishment would do much to protect them from disturbance. PSG is going to send a letter to the Federal Environmental Minister giving our support to the establishment of the park.
- An expanding fishery for young sardines in Los Angeles Bay, Baja, Mexico, may deplete seabird food supplies. Michael Fry and Enriqueta Velarde are investigating the possibility of an alternate fishery "*Artemia*" which would be environmentally more acceptable as an alternative. Also, they are looking into preserve status for the seabird islands of the bay.
- Christmas Island (Pacific Ocean) - Located in the country of Kiribatii (Gilbert Islands), Christmas Island is a very large seabird colony which is particularly important for the Christmas Island shearwater and the Phoenix petrel. Planned salt mining may necessitate the building of docks and likely would cause introduction of rats. Rats could decimate bird populations. Sandy Bartle from New Zealand will further investigate the situation and draft a letter for PSG to send to the Kiribatii government expressing PSG concerns.

Art Sowls

New Chair of the Conservation Committee

Jay Nelson has recently taken a position in Washington, D.C., and has decided to step down from Chair of the Conservation Committee. He has done a wonderful job, and we all thank him. Art Sowls has agreed to chair the committee. His address is: Art Sowls, Alaska Maritime Wildlife Refuge, 202 Pioneer Avenue, Homer, Alaska 99603.

PSG Resolutions

Jay Nelson has compiled all resolutions passed by the Pacific Seabird Group. If you would like to get a copy of them, they are available from Art Sowls, new Chair of the Conservation Committee. His address is in the preceding paragraph.

RESOLUTION ON DRIFTNETS

WHEREAS, the use of long, plastic driftnets is an ecologically wasteful, indiscriminate, and destructive fishing technique that results in the entanglement, and death of hundreds of thousands of seabirds, as well as numerous porpoises and nontarget fish, and

WHEREAS, data collected by the U.S. Fish and Wildlife Service at present suggest that losses of breeding Tufted and Horned Puffins taken in the Japanese salmon mothership fishery inflict large losses that, if continued, may negatively affect seabirds in the western Aleutian Islands, and

WHEREAS, there exists a need for more information on the number and kinds of seabirds, marine mammals, and fishes taken in driftnets in the North Pacific Ocean, and

WHEREAS, Senator Ted Stevens of Alaska previously introduced legislation in the 99th Congress (S.B. 2611) that would improve efforts to monitor, assess, and reduce the adverse effects of driftnets,

THEREFORE, BE IT RESOLVED that the Pacific Seabird Group endorses the reintroduction and passage of similar legislation by both the Senate and the House after the convening of the 100th Congress of the United States. We additionally urge appropriation of funds to monitor the effects of the fishery on seabird colonies in the western Aleutian Islands.

Copies of the resolution will be sent to:

Senator Ted Stevens (Alaska)
Senator Frank Murkowski (Alaska)
Congressman Don Young (Alaska)
Members, Senate Commerce, Science and Transportation Committee

MARBLED MURRELET MANAGEMENT WORKSHOP

A workshop on Marbled Murrelet Management on December 9, at the PSG Annual Meeting. Representatives from conservation organizations, private research organizations, and federal and state agencies met to discuss the management of Marbled Murrelets.

Research and management information was discussed. A resolution was drafted for the Executive Council of the Pacific Seabird Group regarding the degree of threat to marbled murrelet populations and management actions that should be implemented by state, provincial, and federal wildlife and land management agencies.

A summary of the workshop follows:

Marbled murrelets nest in cavities and on the ground in parts of Alaska where there are no trees. Researchers have looked for ground and cavity nesting marbled murrelets in areas with trees (the lower 48 states), but no nests have been found. In fact, researchers in Oregon and California have observed murrelets in a stand of old-growth timber but, once that timber is logged, then the murrelets are not observed either on land or on the water. *There is no evidence from S.E. Alaska, British Columbia, or the lower 48 states that marbled murrelets use anything other than trees for nesting.*

Degree of threat

1. Logging. Marbled murrelets are dependent on old-growth coniferous trees in S.E. Alaska, B.C., Washington, Oregon, and California according to the available information in literature.
2. Fishing mortality.
3. Oil pollution. An oil spill in an area where marbled murrelets concentrate. Marbled murrelets concentrate in local areas within their range. An oil spill near a murrelet aggregation could result in large losses to the local population.
4. Aquaculture. Aquaculture structures are often built in protected bays. Marbled murrelets regularly occur in this type of habitat. The impact of the structures and the associated human activity has not been investigated. Impacts could be due to pollution and loss of habitat in the nearshore area.

Logging removes potential habitat. Fishing and oil pollution impact the population directly. Impacts of aquaculture are unknown.

Management Recommendations

Logging

1. Make landowners aware of the problem.
2. Importance of small stands (state parks, forest service, etc.)
3. Request that land management agencies fund studies.

4. Investigate specific sites.
5. Look at timber sales. Monitor before/after. Monitor areas that won't be cut. See if that population changes.

Fishing

1. Look for concentrations and also mortality. Close or modify seasons in small local areas if necessary.
2. Look for foraging areas.

Aquaculture

1. Monitor.
2. Identify marbled murrelet concentrations.

Oil Pollution

1. Identify concentrations (aggregations).
2. Collect evidence. Only problem recorded has been in California in 1930's and in 1986.

Research Needs

Monitor populations

1. Look at forest types, listen for marbled murrelets. Document presence or absence by visual observations or by vocalizations of marbled murrelets during the morning departure.
2. Identify those habitats and stand characteristics where marbled murrelets have been observed.
3. Determine at-sea distribution - provides broad information. Investigate the relationship between the at-sea distribution and presence or absence of old-growth forests on the shore.
4. Need definitive data. Have found nests, need to understand nesting requirements.

Further research is necessary to determine nesting and habitat requirements.

Regional Priorities

Washington, Oregon, California. Small populations, so look at remaining stands of old-growth. Must also do "at-sea" monitoring. Investigate relationship between aggregations of marbled murrelets and the presence or absence of old-growth forest on the shore.

British Columbia. Continue at-sea monitoring. Continue to investigate the relationship between aggregations of marbled murrelets and presence/absence of old-growth forest. Continue to monitor entanglement in fishing nets.

Alaska. Develop a method of monitoring "at-sea" populations in fjords of Southeast Alaska. Investigate relationship between at-sea population and presence/absence of old-growth on the shore. Investigate possibility that marbled murrelets may nest in alpine areas of Southeast Alaska. Monitor entanglement in fishing nets.

Resolution

A resolution concerning Marbled Murrelets was drafted at the workshop. The resolution follows a resolution passed by PSG in 1982. Both resolutions are printed below.

MARBLED MURRELET RESOLUTIONS

1982 Marbled Murrelet Resolution: Consideration of Marbled Murrelets in old-growth forest management

WHEREAS, the Marbled Murrelet is a seabird native to the North Pacific Ocean, having breeding populations in both the United States and Canada; and

WHEREAS, the distribution and abundance of breeding Marbled Murrelets appear to be closely related to the remaining stands of old-growth forest along the Pacific Coast of North America from California to Alaska; and

WHEREAS, available evidence indicates that a significant proportion of the North American population of Marbled Murrelets is dependent upon extensive stands of old-growth forest for nesting; and

WHEREAS, most remaining old-growth forests are scheduled to be logged in the next 50 years; and

WHEREAS, the International Council for Bird Preservation's Alcid Working Group has recognized the Marbled Murrelet as a species of concern because of habitat destruction within its breeding range; and

WHEREAS, the U.S. Forest Service is responsible for managing most of the remaining old-growth forest stands in the United States;

THEREFORE, BE IT RESOLVED that the Pacific Seabird Group recommends that U.S. and Canadian forest and wildlife management agencies consider Marbled Murrelets in all management plans and other proposed developments that may adversely affect the integrity of the old-growth forest; and

BE IT FURTHER RESOLVED that the Pacific Seabird Group respectfully request that U.S. and Canadian forest and wildlife management agencies fund studies to investigate the habitat requirements of nesting Marbled Murrelets.

1986 Marbled Murrelet Resolution

WHEREAS the state, provincial, and federal forest and wildlife management agencies are responsible for managing habitat, protecting migratory bird populations, and regulating use of public resources;

WHEREAS the 1982 Pacific Seabird Group resolution on marbled murrelets recommended that U.S. and Canadian forest and wildlife management agencies consider marbled murrelets in all management plans and other proposed developments that may adversely affect the integrity of the old-growth forests, AND the Pacific Seabird Group respectfully requested that U.S. and Canadian forest and wildlife management agencies fund studies to investigate the habitat requirements of nesting marbled murrelets; and

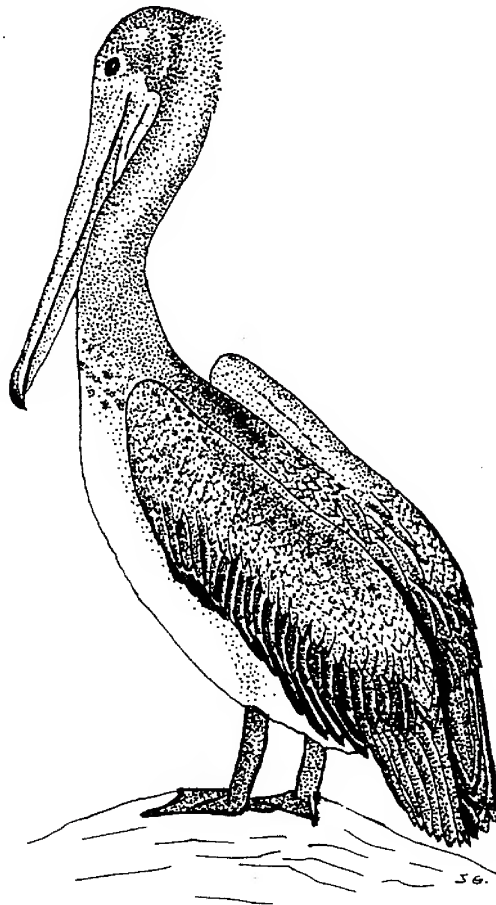
WHEREAS most of the remaining old-growth forest nesting habitat in Washington, Oregon, and California is still scheduled to be logged within 20 years and in Alaska and British Columbia within 50 years; and

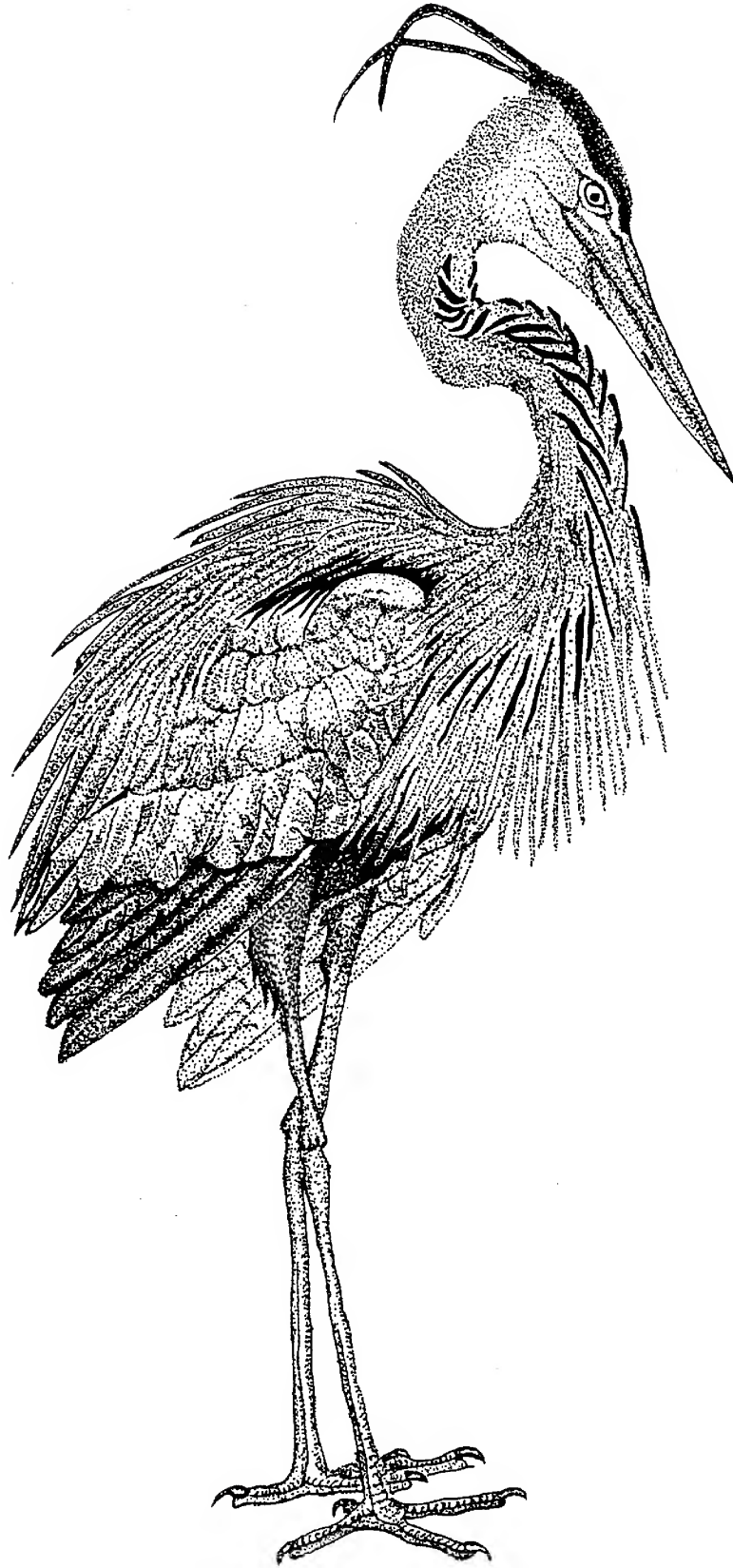
WHEREAS there is additional concern because of mortality from entanglement in fishing nets and oil pollution at sea;

THEREFORE, BE IT RESOLVED that the Pacific Seabird Group recommends that the state, provincial, and federal agencies immediately establish an interagency working group to address research and management needs for the marbled murrelet; and

BE IT FURTHER RESOLVED that the Pacific Seabird Group recommends that the marbled murrelet be designated as a sensitive species within its North American range; and

BE IT FURTHER RESOLVED that the U.S. National Forests within 75 km of salt water include the marbled murrelet as a sensitive species in their current National Forest Management Plans.





THE PROGRAM CHAIR'S COMMENTS THIRTEENTH ANNUAL MEETING

La Paz, Baja California Sur, Mexico

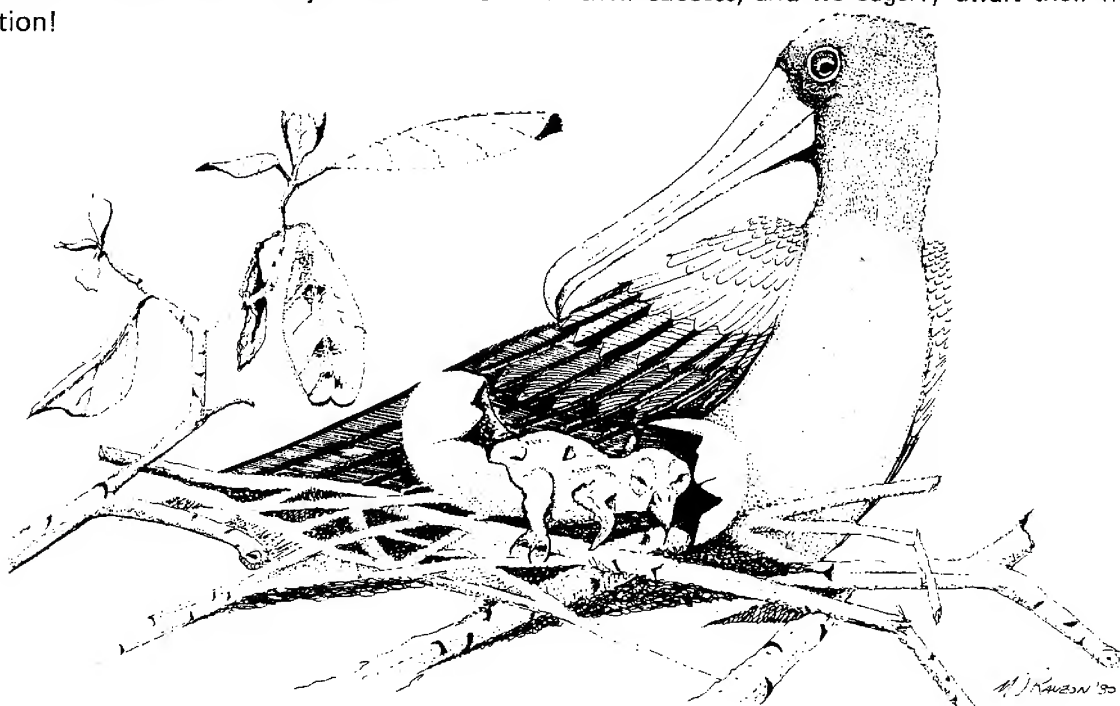
10-14 December 1986

Ken Briggs

LA PAZ IN DECEMBER 1986. Now that was some meeting! A few of the annual gatherings of the PSG will always stand out in our minds: goodness, it was cold in Seattle in '82. Ah, Hawaii... How about San Francisco's Chinatown in '85. Put La Paz 1986 right up there with the best! For more than 150 attendees, this was a real gem. Travel for some of us began as early as a week before the first papers were delivered. The bus tour from San Diego to La Paz passed through some of the most spectacular desert country anywhere: more than 1,000 km of mountains, mesas, and salt pans; cardon and boojum trees to every horizon; oases surrounded by palms; and birds galore! For many of us, the list stood over 100 bird species before we got to La Paz, including the endemic thrasher and hummingbird. The field trips and private excursions took in the Bay and islands east of La Paz, the desert and beaches to the south, ferries to the mainland, and, of course, lots of dicking over goods in the markets.

The program came off without a hitch, due to the tremendous efforts of Juan Guzman and the fine local committee in La Paz. Thirteen papers constituting a symposium on Biology of Seabirds of the Gulf of California gave many of us the first glimpse at birdlife in this fantastic, almost-enclosed sea. We were treated to highlights of research by our Mexican colleagues, research that has made tremendous technical and conceptual progress over the last five years. A special thanks to Enriqueta Velarde and Dan Anderson who stimulated much of this research and brought together our symposium. Contributed papers included an additional 32 lectures, one film, and 13 posters covering a broad array of biological and conservation topics. And we were entertained with recollections of early conservation efforts in the Gulf of California by Bernardo Villa-Ramirez, the first important advocate of protection for the wonderful Gulf Islands.

From the stark beauty of the desert to the fantastic social program and the high quality research papers, this was truly a great annual meeting. I'm sure we all congratulate Juan Guzman and the Universidad Autonoma de Baja California Sur for their success, and we eagerly await their next invitation!



ABSTRACTS

ENVIRONMENTAL CORRELATES OF DISTRIBUTION OF STORM-PETRELS IN THE GULF OF CALIFORNIA

Anderson, D. W. (Dept. of Fisheries and Wildlife, Univ. of California, Davis, CA 95616), K. T. Briggs (Coastal Marine Lab., Univ. of California, Santa Cruz, CA 95064), and E. Daghir (National Earth Satellite Service, Redwood City, CA)

Two species of storm-petrels, the Least (*Oceanodroma microsoma*) and the Black (*O. melania*) are the most abundant seabirds in the northern Gulf of California. Nesting is concentrated on Isla Cardinosa, with lesser numbers on the San Luis Archipelago and Roca Consag. Leach's Storm-Petrel (*O. leucorhoa*) is seen usually only near Isla San Pedro Martir, and only in small numbers. Ship data taken since 1971 and satellite images made in 1982-86 are used to evaluate environmental conditions favoring petrel concentrations. Numbers of Least and Black storm-petrels are cross-correlated, peaking at thermal fronts bordering upwellings, particularly where surface slicks are present. The Black occupies warmer waters than the Least; both frequently co-occur with migrant phalaropes. Petrel populations decline abruptly during El Niño events.

ORGANOCHLORINE POLLUTANTS IN THE CALIFORNIA LEAST TERN

Boardman, C. J. (Dept. of Biology, California State Univ., Long Beach, CA 90840)

The California least tern (*Sterna antillarum*) is an endangered bird which nests primarily on beaches along the Southern California coast. The contents of 15 abandoned eggs, and the livers of 15 adults found dead in breeding colonies were examined for the presence of organochlorine compounds. Previous studies have detected DDE levels of over 365.55 ppm in eggs, and total DDT residues of 350 ppm in whole birds. One major chlorinated compound was found in the analysis. This compound elutes at the same time as O'P' DDD and a PCB. The identity of the compound will be determined using a gas chromatograph equipped with a mass spectrometer detector.

MAGELLANIC PENGUIN MIGRATION

Boersma, P. D. (Institute for Environmental Studies, Univ. of Washington FM-12, Seattle, WA 98195)

At Punta Tombo, Argentina, from February 1984 to 1986, Magellanic chicks were banded, weighed, and measured just before they fledged. Four thousand birds were banded in each year's class. Mortality has differed between years with the winter of 1984 having the greatest number of birds found dead. Birds move northward after fledging, with many reaching Brazil.

GROWTH PATTERN AND PARENTAL CARE OF *FREGATA MAGNIFICENS* IN SANTA MARGARITA ISLAND, B.C.S., MEXICO

Carmona, R., L. Moreno, and J. Guzman (Univ. Autonoma de Baja California Sur, Apartado Postal 219-B, La Paz, B.C.S., Mexico)

The growth pattern, since hatching, of 28 chicks of *Fregata magnificens* has been studied during the 1986 breeding season. This study is being carried out in the only colony of this species for the Peninsula of Baja California, located in Santa Margarita Island. The growth curves of bill

length, wing, weight, and total length were fitted to a sigmoid curve. This pattern coincides with that observed in 1985 for a similar set of data from the colony. Information on nesting behavior and parental care was also collected, completing in this way the study for an annual breeding cycle that was commenced in 1985.

ECOLOGICAL ASPECTS OF AN INTEGRATED DEVELOPMENT PROGRAM (I.D.P.) FOR THE NATURE RESERVE ON ISABEL ISLAND, NAYARIT, MEXICO

Cervantes A., M., A. Patino T. and E. Madonado R. (ENEP-UNAM, Ixtacala, Tlaxtepec, E.M., Apartado Postal 314, Coord., Biol. C.P. 54090, Mexico)

The interactions of physical, biological, and social factors on an island, which is to be protected, offers a practical model in order to determine the elements that may diminish human disturbance in that environment, and therefore improving its management. This paper deals with the basic aspects to be considered in an Integral Developmental Program (IDP), in order to make it ecologically sound. Given the importance of the herpetological and ornithological communities and the influence of man on Isla Isabel, we tried to establish the successional stages of that ecosystem and consequently to find out which of its components, at the community level, are sensitive to human activity. We considered the plant community as our point of reference in our research and conclusions.

REPRODUCTIVE FAILURES OF KITTIWAKES CONTINUE IN THE BERING SEA REGION

Cooper, B. A., P. D. Martin, and E. C. Murphy (Institute of Arctic Biology, Univ. of Alaska, Fairbanks, AK 99775-0180)

We have previously reported repeated reproductive failures at Bluff in Norton Sound and on St. Matthew Island in the central Bering Sea. In 1986, kittiwake reproduction was delayed at Bluff and reproductive performance was depressed. At St. Matthew Island, clutch sizes were high and hatching success moderately high, considerably higher than 1983 and 1985. However, chick survivorship was poor and thus breeding success again was low. We examine these patterns in relation to annual differences in regional climatic conditions and food habits of kittiwakes.

BREEDING SYNCHRONY AND REPRODUCTIVE SUCCESS OF BLUE-FOOTED BOOBIES ON NORTH SEYMOUR ISLAND, GALAPAGOS, ECUADOR

Coulter, M. C. (Savannah River Ecology Laboratory, P. O. Drawer E, Aiken, SC 29802) and C. A. Valle (Estacion Cientifica Charles Darwin, Casilla 58-39, Guayaquil, Ecuador)

Blue-footed Boobies (*Sula nebouxii*) breed throughout the year in the Galapagos archipelago. We have studied the breeding of boobies on North Seymour Island since 1981. Although nests are initiated at all times of year, peaks in egg laying suggest synchronization within the colony. There is no apparent synchrony between the colony on North Seymour and those on other islands. In addition, from February through June, nesting success is high, while success is low from July through November. This is presumably related to seasonal changes in ocean productivity.

During the study, the archipelago experienced the strong 1982-83 ENSO. The boobies did not breed at this time. Thick vegetation grew up as a result of heavy rains. When the birds returned to breed, they were unable to breed in many areas where they had previously bred. The colony has begun to return to its condition before the ENSO.

DIVING PATTERNS IN RELATION TO DIET IN GENTOO AND MACARONI PENGUINS

Croxall, J. P. (British Antarctic Survey, Madingley Rd., Cambridge CB3 0ET, UK) and R. W. Davis (Hubbs Marine Research Institute, 1700 South Shore Drive, San Diego, CA 92019)

Diving profiles were obtained (using electronic recorders) from Gentoo and Macaroni Penguins during chick rearing. For Gentoos eating krill, 90 percent of dives were shallower than 54m; for birds eating fish 50 percent exceeded 54m. Macaronis ate only krill. On night-time trips, all dives were shallower than 20m; on all-day trips, half the dives exceeded 20m. Comparisons are made with data from other Antarctic penguins and fur seals.

SOCIAL ROLES IN BROOD REDUCTION IN THE BLUE-FOOTED BOOBY

Drummond, H., J. L. Osorno, and E. Gonzalez (Dept. de Ecologia, Instituto de Biologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

On Isla Isabel, Mexico, *Sula Nebouxii* lays a model clutch of two similar-sized eggs which hatch four days apart. Parents feed the senior chick preferentially, and it grows faster in good and poor years. Mortality of junior chicks is higher, apparently due to siblicide; yet even underweight senior chicks generally tolerate the presence of a sibling. However, when the senior chick's weight falls to 75-80 percent of potential, the junior one is eliminated. Parents set up and promote the inequality which facilitates siblicide but never interfere directly in chick hostilities. The growth, mortality, and behavioral data are interpreted as implying parent-offspring cooperation over brood reduction, rather than the parent-offspring conflict predicted by recent theory.

ADAPTIVE NON-ADAPTIVENESS IN THE PATTERN OF NESTING DISPERSION IN PIGEON GUILLEMOTS

Emms, S. K. (Dept. of Biological Sciences, Simon Fraser Univ., Burnaby, B.C. V5A 1S6, Canada)

The pattern of nesting dispersion in pigeon guillemots *Cephus columba*, and two possible selective factors influencing it - predation risk and food-finding - were studied on Mitlenatch Island, B.C. in 1984 and 1985. Birds were found to be nesting randomly with respect to the distribution of suitable nest sites; there was no tendency towards either clumping or over-dispersion. Predation pressure, exerted largely by northwestern crows *Corvus caurinus* and wandering garter snakes *Thamnophis elegans*, was found to be independent of nest density. Groups of nests did not seem to serve as information centers for food-finding since the rate at which chicks were fed and chick growth rates were both independent of nest density. A theory of adaptive non-adaptiveness is proposed to explain these results.

BIOLOGY OF THE BLACK-VENTED SHEARWATER: CURRENT STATE OF KNOWLEDGE

Everett, W. T. (Dept. of Birds and Mammals, San Diego Natural History Museum, P. O. 1390, San Diego, CA 92112)

Black-vented shearwaters (*Puffinus opisthemelas*) breed at Isla Guadalupe, the San Benito Islands, and principally on Isla Natividad, midway down the Pacific coast of Baja California. There have been several erroneous reports of breeding elsewhere. There are no published population estimates. Breeding phenology varies from island to island and possibly year to year. Birds disperse north after breeding, occurring off southern California principally in fall and winter. The

status and distribution of migrants off mainland Mexico is not clear. Feral cats are well established at Natividad.

VARIATION IN REPRODUCTIVE SUCCESS OF BLACK NODDIES ON TERN ISLAND, FRENCH FRIGATE SHOALS, HAWAII, FROM 1980-1985

Fefer, S. I., A. Newman, and D. Hu (U.S. Fish and Wildlife Service, P. O. Box 50167, Honolulu, HI 96850)

Reproductive success rates (including hatching, fledging, and breeding success) of black noddies were measured on Tern Island, French Frigate Shoals, from 1980-85. We applied a method which adjusts the apparent nesting success rate to account for the bias caused by the greater chance of finding a successful nest (which persists for a rather long time) than an unsuccessful one (which may be present for only a few days). Hatching success and breeding success varied between 50 percent and 80 percent over the six-year study period. Fledging success remained consistently high during the years of this study. In 1981-85, breeding success increased over 20 percent during the first two-three months of major egg-laying and declined in nests laid late in the season. Hatching success changed similarly. Most nests failed when heavy winds and storms destroyed eggs. By carefully monitoring reproductive success rates, it is possible to detect trends that may affect the population's status. Correlation of these trends with environmental changes provides insight to wildlife managers.

SEASONAL VARIATION IN FREQUENCY OF LARIDAE IN THE REGION OF BARRA DE NAVIDAD, JALISCO, MEXICO

Flores M. J. A. (Laboratorio de Ciencias Marinas, Univ. Autonoma de Gualdalajara, Apartado Postal 3, Barra De Navidad, Jalisco 48987, Mexico)

The coast of Barra de Navidad (lat 19 15' N, long 104 40' W) is an area of high bird abundance due to presence of large fish stocks. Censusing was carried out twice monthly from November 1984 to October 1985. The family Laridae (represented by 13 species of gulls, terns, and skimmers) is widely distributed along the south coast of Jalisco state. I describe different patterns of habitat occupancy for year-round residents and seasonal visitors.

PAIR BONDING BY WEDGE-TAILED SHEARWATERS ON MANANA ISLAND, HAWAII

Fry, D. F., L. A. Addiego, J. D. Swenson, and C. R. Grau (Dept. Avian Sciences, Univ. Calif., Davis, CA 95616)

Mate fidelity of Wedge-tailed Shearwaters on Manana Island is highly correlated with the breeding success of pairs in the previous year. Unsuccessful pairs switch mates with a frequency dependent upon their "relative success" (i.e., pairs failing to hatch an egg separated more often than pairs hatching a chick which later died). Only those pairs successfully raising a chick remained together with a frequency exceeding 50 percent.

Seabird species breeding in high latitudes usually remain together independent of breeding success. Mate fidelity of shearwaters in this colony is dependent upon breeding success. Factors responsible for differences between Hawaiian and subarctic species may include reliability of food and predictability of weather from year to year. This work was supported by U.S.D.I. Minerals Management Service Contract 14-12-0001-29112/SB0408(a)-81-C-0509 awarded to Nero & Assoc., Portland, Oregon.

PLASTICS INGESTION BY SEABIRDS - ESTIMATING SPECIES AT RISK

Fry, D. M. (Dept. Avian Sciences, Univ. Calif., Davis, CA 95616)

Recent reviews and studies of seabirds in the Pacific Ocean indicate that at least 60 species of seabirds ingest plastics while foraging. Several species, particularly albatrosses, regurgitate plastics to chicks. The possible debilitating effects of plastics on chick growth due to obstruction, abrasion, or toxicity are unknown, although large volumes of ingested plastics appear to reduce survival of Laysan Albatross chicks.

Estimates of risk to adult and juvenile seabirds must include several factors: (1) adult foraging range and feeding habits, (2) sizes and shapes of plastics ingested, and (3) ability of species to regurgitate foreign objects from the proventriculus. Small alcid may be at high risk because of an inability to regurgitate plastics. Chicks of most large alcid may be at low risk because prey items for chicks are carried in the beaks of adults. Small and intermediate sized adult procellariids may be at relatively low risk, while albatrosses feeding in oceans with much debris appear to be at highest risk.

PREY SELECTION AND FORAGING BEHAVIOR OF WILSON'S PLOVER (*CHARADRIUS WILSONIA*) IN LA PAZ INLET, BAJA CALIFORNIA SUR, MEXICO

Galindo Jaramillo, J. M. (Centro de Inv. Biol. de Baja Cal. Sur A.C., P. O. Box 128, La Paz, Baja California Sur, 23000, Mexico)

The feeding behavior of Wilson's Plovers was studied in La Paz Inlet from July 1985 to March 1986. I recorded three ways of catching food, of which the most common was staring-running-stabbing-pecking. The birds are specialized feeders, eating mostly fiddler crabs, *Uca crenulata*. They eat more male crabs than female crabs, probably because males are more available. The prey-handling time is related to size and sex of the prey but is also influenced by factors such as kleptoparasitism and wind speed.

During this study, I was supported by thesis scholarship number 49006 from the Consejo Nacional de Ciencia y Tecnologia (CONACyT).

THE INFLUENCE OF FOOD SCARCITY ON FRATRICIDAL BEHAVIOR OF BLUE-FOOTED BOOBIES (*SULA NEBOUXII*) ON ISABEL ISLAND, NAYARIT, MEXICO

Garcia Chavelas, C., and H. Drummond (Dept. de Ecologia, Instituto de Biologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

The effect of artificial food scarcity on aggression between sibs was studied in the blue-footed booby, a species that practices facultative brood reduction through siblicide. In 33 experimental nests (18 with young chicks less than 45 days old and 15 with old chicks), food ingestion by the chicks was frustrated artificially during several days. Comparison with eight control nests showed that lack of food and weight loss lead to (1) an increase in the senior chick's aggression to its sib and (2) a possible tendency towards favoring food delivery to the first chick in the case of young chicks. It was noteworthy that parents never interfered to dampen the hostility between their offspring.

HOW ANCIENT MURRELET CHICKS FIND THEIR WAY FROM THEIR BURROW TO THE SEA

Gaston, A. J., I. L. Jones, D. G. Noble, and S. A. Smith (Canadian Wildlife Service, Ottawa K1A 0E7, Canada)

Ancient Murrelet chicks leave their natal burrow within four days of hatching and make their way unaccompanied to the sea, where they rendezvous with their parents. They make the journey in pitch darkness and must contend with uneven ground and dense vegetation. We tested a number of possible cues by which they may orient and found that they are capable of responding to light intensity, angle of slope, and auditory cues (including the sound of the surf).

RELATION BETWEEN CHICK MOBILITY, IDENTITY OF INTRUDER AND DENSITY OF NESTS WITH RESPECT TO TERRITORIAL BEHAVIOR OF BLUE-FOOTED BOOBIES (*SULA NEBOUXII*) DURING THE CHICK PERIOD

Gonzales, E., J. L. Osorno, and H. Drummond (Dept. de Ecologia, Instituto de Biologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

Territorial behavior of the blue-footed booby was recorded from March to July 1983 in a 15,000 m area on the NE part of Isla Isabel, Nayarit, Mexico. A total of 971 h of observation were recorded on 75 nests. Parental care was divided into three stages for analysis: egg, immobile chicks (< 30 days old), and mobile chicks. The territory defended by parents was equally small during the first two stages, increasing in size when the chicks were mobile. The frequency of agonistic interactions with intruders doubled from one stage to the next. The areas defended against neighbor and non-neighbor intruders did not differ in size, but non-neighbors were attacked more often and with more ritualized displays. Nesting density affected territory size but not the frequency nor the quality of aggressive interactions.

BREEDING SUCCESS OF THE HEERMANN'S GULL (*LARUS HEERMANNI*) IN RELATION TO NESTING DENSITY AND SUBSTRATE TYPE ON ISLA RASA, BAJA CALIFORNIA, MEXICO

Gonzalez-Peralta, L., and E. Velarde (Instituto de Biologia, Dept. de Zoologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

Nesting density and substrate type have been observed to affect breeding success in several seabird species. In this study, we analyze the effect of these factors on the breeding success of the Heermann's gull in 1985 and 1986. Four lots of 100 m square with different nesting density and substrate type were established. Periodic censuses were made registering number of nests, clutch size, egg survival, chick's birth dates, and chick survival. Average clutch size and chick survival was always higher for 1985, but the highest density area showed less variation for both years. Average egg survival was always higher for 1985. Breeding success was higher in 1986 in all but one lot. Nesting density decreased in all but the highest density area, where it increased.

DIFFERENCES IN PARENTAL CARE AND PARENTAL INVESTMENT BETWEEN SIBS IN THE BLUE-FOOTED BOOBY (*SULA NEBOUXII*), ON ISABEL ISLAND, NAYARIT, MEXICO

Guerra Gomez, M., and H. Drummond (Dept. de Ecologia, Instituto de Biologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

Differences in parental care provided by male and female blue-footed boobies were studied during the 1985 breeding season. Differences were not found either in the feeding frequency or in the quantity of food delivered to chicks younger than 12 days. For chicks 12-35 days old, the female provided four times as much food as the male. Both parents spent the same amount of time brooding during the four days after the first egg hatched. From the 5th to the 11th day, the female spent twice as much time on the nest as the male. Both parents fed preferentially the senior chick compared with the junior chick.

SEABIRDS OF THE BAY LA PAZ: THEIR DISTRIBUTION AND SEASONAL FLUCTUATIONS

Guzman, J. (Apdo. Postal 85-B, La Paz, B.C.S., Mexico) and E. Amador (Centro de Investigaciones Biologicas, Apartado Postal 128, La Paz, B.C.S., Mexico)

Two years of monthly census of seabirds in the Bay of La Paz, B.C.S., Mexico, have been used to determine their coastal and pelagic distribution, as well as their seasonal fluctuations. The fieldwork was commenced in October 1984 and consisted of pelagic transects across the Bay of La Paz and coastal census along the east and west sides of the bay, including the islands. The Bay of La Paz seems to be a wintering area for many species and an important breeding locality for the brown pelican.

PRODUCTIVITY AND SURVIVAL OF BLACK-LEGGED KITTIWAKES IN ALASKA

Hatch, S. A. (Alaska Fish and Wildlife Research Center, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503)

More than 80 estimates of kittiwake production are available from colonies observed in Alaska during the last decade. These data indicate overall productivities of 0.3 young/pair/year in the Gulf of Alaska and 0.4 young/pair/year at colonies in the Bering and Chukchi Seas. In contrast, long-term studies of kittiwakes in Britain show rates of 1.3 young/pair/year in that region, fully three to four times higher productivity than in Alaska. A simple life table analysis indicates that Alaskan kittiwakes must have much higher rates of post-fledging survival than reported from Britain or we can expect substantial population declines in the near future. Preliminary estimates of adult survival from Middleton Island, central Gulf of Alaska, were 79 percent from 1984 to 1985 and 83 percent from 1985 to 1986--rates that fall far short of those required for a stationary population. Repeated censuses of kittiwakes on Middleton Island and elsewhere, however, have largely failed to substantiate predictions from the life-table analysis.

MARINE BIRD RESEARCH IN ALASKA: REVIEWING A DECADE OF OUTER CONTINENTAL SHELF ENVIRONMENTAL ASSESSMENT PROGRAM (OCSEAP) CONTRIBUTIONS

Hubbard, J. D. (U.S. Dept. of Interior, Minerals Management Services, P. O. Box 101159, Anchorage, AK 99510)

Prior to 1975, literature on Alaskan marine birds was scant. Reports primarily were anecdotal, contained in faunal surveys; a few ecological studies were done by university investigators. Beginning in 1975, studies carried out under OCSEAP, currently administered in part by the Minerals Management Service (MMS), significantly broadened the scope and geographic coverage of seabird research in Alaska. Through the efforts of approximately 100 investigators, substantial knowledge of marine birds in both pelagic and coastal environments has accumulated.

Topics studied by OCSEAP investigators include seasonal distribution and habitat use, colony census and atlas, reproductive ecology, trophic relationships, population modeling, shorebird ecology, community ecology, and migration. Future MMS research is likely to emphasize colony monitoring to provide adequate population/productivity baselines and site-specific studies aimed at improving our ability to answer questions concerning assessment and mitigation of the potential effects of petroleum development.

FORAGING OF LEAST AUKLETS NEAR KING ISLAND, ALASKA

Hunt, G. L., and N. M. Harrison (Dept. of Ecology and Evolutionary Biology, Univ. of California, Irvine, CA 92717)

We examined the foraging distribution of Least Auklets (*Aethia pusilla*) and the distribution of their prey relative to physical features across the Bering Shelf west of King Island. Auklet foraging was concentrated at and beyond a front about 30 km west of King Island. This front separated relatively unstructured Alaska coastal water from Bering Shelf water, with a strong pycnocline, to the west. The front marked the eastern boundary of a highly oceanic planktonic fauna; the auklets' preferred prey, *Neocalanus plumchrus*, was one of the dominants in this community. Auklets respond not only to horizontal structure of the ocean, but also the vertical; when a pycnocline is absent or deep, Least Auklet foraging activity is reduced.

DISTRIBUTION AND BREEDING SUCCESS OF THE BROWN PELICAN IN THE BAY OF LA PAZ, B.C.S., MEXICO

Jimenez, C., and J. Guzman (Univ. Autonoma de Baja California Sur, Apartado Postal 219-B, La Paz, B.C.S., Mexico)

During the annual cycle, all the age classes of Brown Pelican (*Pelecanus occidentalis californicus*) are represented in the Bay of La Paz. There are considerable seasonal variations of each age class in relation to the breeding and non-breeding periods.

Breeding activity has been recorded since 1979 in the Bay of La Paz. During this period, nest productivity has increased from 1.1 to 2.6 chicks per nest. In comparison to records from other areas, this productivity is very high.

NESTING SUCCESS OF PELAGIC CORMORANTS IN THE ST. MATTHEW AREA

Johnson, C. B., and R. J. Rohleder (Institute of Arctic Biology, Univ. of Alaska, Fairbanks, A.K. 99775)

Nesting success of Pelagic Cormorants on St. Matthew and Hall Islands was studied during 1985 and 1986. Although data are incomplete, nesting success was lower than that reported for Pelagic and Double-crested Cormorants in British Columbia in other studies. During 1986, 44 nests containing eggs at first observation had at least 118 eggs (some were probably lost before observation) of which 61 hatched. Hatching success was 0.58 on St. Matthew and 0.49 on Hall. Chick survival from hatching to last observation on 10 August was 0.50 for St. Matthew and 0.62 for Hall. The number of chicks surviving per active nest (containing eggs or chicks during the survey) was less at St. Matthew (0.76) than at Hall (1.02). Egg and chick loss was attributed to predators, disturbance, storms, and parental neglect.

COLONY ATTENDANCE BEHAVIOR OF ANCIENT MURRELETS (*SYNTHLIBORAMPHUS ANTIQUUS*)

Jones, I. L. (Dept. of Zoology, Univ. of Toronto, 25 Harbord St., Toronto, Ontario M5S 1A1, Canada) and A. J. Gaston (Canadian Wildlife Service, Ottawa K1A 0E7, Canada)

We studied seasonal and night-to-night variation in activity at a colony of murrelets at Reef Island, Queen Charlotte Islands, British Columbia. Here we present the results, obtained throughout the breeding season at study plots, of nightly monitoring of arrivals and vocalizations, and of daily counts of burrows entered. No consistent seasonal pattern of activity or vocalization were found in three years of study. Activity and vocalization at the colony were greatly reduced on moonlit nights and during storms.

PARENTAL CARE IN THE CALIFORNIA LEAST TERN - MALE AND FEMALE ROLES

Keane, K. (Dept. of Biology, California State Univ., Long Beach, CA 90840)

The parental behavior of 30 California least tern pairs was observed at three colonies during the 1984 and 1985 breeding seasons. Analysis of 860 observation hours revealed that females spend significantly more time in incubation and brooding than do males; courtship feeding rates declined significantly over the incubation period; chick feeding rates, but not the sizes of fish fed, were significantly greater for males than for females; and conspecific aggression rates were not significantly different between males and females. Energetic investment in parental care is difficult to quantify, but it is clear that males and females of this monogamous colonially nesting species contribute differently to parental care activities. The seemingly greater energy expenditure by the male in seeking and obtaining a larger percentage of fish for young may be offset by the female in egg production and/or in a greater percentage of incubation and brooding.

SEABIRD NUMBERS AND DISTRIBUTION IN THE GULF OF CALIFORNIA MIDRIFT REGION

Keith, J. O (Denver Wildlife Research Center, U.S.D.A., Box 3039, Waikoloa, HI 96743)

Surveys to assess brown pelican breeding performance in the midrift area of the Gulf of California provided an opportunity to record the abundance and distribution of other birds and mammals. Data are presented for observations taken in April and June 1977 to illustrate the kinds and locations of animals recorded and changes in their numbers between surveys. Migration influenced numbers of some species. Eared grebes, surf scoters, red-breasted mergansers, and northern phalaropes were abundant in April but had largely left by June. In contrast, shearwaters, which were absent in April, had moved into the midrift by June. Other species such as boobies, frigatebirds, gulls, and pelicans appeared less abundant in April when adults were breeding. By June, adults and young were more obvious and were seen in more locations. Islands in the midrift support good populations of nesting osprey and peregrine falcons.

EXPERIMENTAL ADOPTION IN THE GLAUCOUS-WINGED GULL: THE EFFECTS OF FENCE SIZE AND DISTANCE FROM THE NEST

Kennett, M. J., R. L. Carter, and J. G. Galusha (Dept. of Biological Sciences, Walla Walla College, College Place, WA 99324)

Chick recognition by adult gulls has been studied by rotating chicks between territories enclosed by 1 m square wire fences. This paper compares adult acceptance of resident and switched chicks placed on 72 territories: 36 with varying fence size (1 m sq., 2 m sq., and nonfenced controls) and 36 with chicks tethered at two distances from the nest (18 at nest rim and 18 at 3.2 m). Data were collected on days 3, 9, 16, 22, and 31 after hatching. Chicks were attacked in 24 of 360 tests. No resident chicks (fenced, tethered, or control) nor chicks switched to 1 m square fences were attacked. Seven attacks occurred during 60 fence switches (three in 2 m sq. fences and four in nonfenced controls). Seventeen attacks were recorded during 90 tethering switches. It is concluded that small fence size increases the rate of experimental adoption. Additionally, our data suggests that proximity of chick to nest does not reduce adult attacks on strange chicks.

COLONY ATTENDANCE AND PRODUCTIVITY OF NORTHERN FULMARS ON ST. MATTHEW ISLAND, ALASKA

Lawhead, B. E. (Alaska Biological Research, P. O. Box 81934, Fairbanks, AK 99775)

As part of a population-monitoring study of seabirds breeding on St. Matthew Island, Alaska, colony attendance and productivity of Northern Fulmars were investigated from early July through mid-August in 1985 and 1986. Replicate counts of adult birds were obtained during late incubation and early chick-rearing on 21 non-randomly selected study plots. Within plots, counts of birds and sites revealed substantial variation in colony attendance among days; for example, in 1985, coefficients of variation for counts of adults ($n = \text{four to eight}$) ranged from 15 percent to 55 percent. Among plots counted on the same days, the mean correlation coefficient was 0.58 ± 0.29 ($n = 47$), indicating little synchrony in daily attendance. Prenology was similar in both years, with hatching beginning in the fourth week of July and peaking in the first week of August. In 1985, 45 percent of 40 active sites had chicks remaining at our last site visits, when the oldest chicks were approximately three weeks old. Differences in colony attendance and productivity between years are examined and discussed, as are recommended procedures for future monitoring.

FEEDING BEHAVIOR OF THE WILLET (*CATOPTROPHORUS SEMIPALMATUS*) IN THE INLET OF LA PAZ, B.C.S., MEXICO

Llinas Gutierrez, J., and J. M. Galindo Jaramillo (Centro de Investigaciones Biologicas, Apartado Postal 128, La Paz, B.C.S., Mexico)

A report is presented on the feeding behavior of the Willet (*Catoptrophorus semipalmatus*) in two zones of different substrates in the Ensenada de La Paz. In the fall of 1985, four methods of capture used by this bird were observed, three tactile and one visual: the first three corresponded to a muddy beach and the latter to a muddy-sandy beach with abundant mollusk shells. Occasionally, the Willet used a mixed method (tactile and visual) when wading along the beach and when feeding in tidal pools. Their preferred prey were generally fiddler crabs (*Uca princeps* and *U. crenulata*). JMGJ was supported by a thesis scholarship (No. 49006) from the Consejo Nacional de Ciencia y Tecnologia (CONACyT).

FORAGING SUCCESS IN THE BROWN PELICAN (*PELECANUS OCCIDENTALIS*): A COMPARISON OF ADULTS AND JUVENILES

Macias, C., J. L. Osorno, C. G. Chavelas, M. Osorio B. (Facultad de Ciencias, Univ. Nacional Autonoma de Mexico, Apartado Postal 22027, Mexico, D.F., Mexico)

The foraging behavior of the brown pelican during the non-breeding season was recorded. Data were recorded at Isla Isabel, Nayarit, Mexico, during eight days in December 1985. Adults were, on average, more successful than juveniles but, under some circumstances, the pattern was reversed. Juveniles spent more time foraging and used the strategy of fishing in mixed groups (adults and juveniles) more often than adults.

COLONY ATTENDANCE PATTERNS OF MURRES IN THE BERING SEA REGION

Martin, P. D., B. A. Cooper, and E. C. Murphy (Institute of Arctic Biology, Univ. of Alaska, Fairbanks, AK 99775-0180)

At St. Matthew Island in the central Bering Sea, numbers of murres on cliffs showed an indistinct diurnal pattern of relatively stable numbers throughout the day and a decrease in the evening and night-time hours. Examination of daily variation in numbers showed that numbers were lowest during severe storms but, in general, weather conditions accounted for little of the overall variation. At Bluff in Norton Sound, daily variations in numbers were correlated with weather conditions. In contrast to studies elsewhere, however, numbers were lowest on clear, calm days.

RADIO-TELEMETRY ON THE CALIFORNIA LEAST TERN

Massey, B. W., K. Keane, and C. Boardman (Dept. of Biology, California State Univ., Long Beach, CA 90840)

Four male Least Terns were radio-tagged in a pilot study in Los Angeles Harbor during the 1986 breeding season. The birds were trapped on their nests, and a small transmitter glued to the back between the shoulders. The radio signal was picked up through a null-peak antenna/receiver system, with the antennas placed on land and/or in a boat. The birds were followed for four to eight days, both during the incubation and after hatching when they were feeding chicks.

DISTRIBUTION AND ABUNDANCE OF SEABIRDS IN THE VICINITY OF THE GORDA RIDGE, OFF EUREKA, CALIFORNIA, DURING JULY 1986

Matthews, D. R. (Institute of Marine Biology, University of Oregon, Charleston, OR)

In July and August of 1986, geologic studies were conducted in the vicinity of the Gorda Ridge about 150 nautical miles due west of Eureka, California, to collect and assess polymetallic sulfide deposits found near active submarine vent sites. Seabirds were censused in conjunction with these studies to determine seabird abundance and utilization of this area, a potential offshore mining site.

Five species of seabirds were found on a regular basis during the expedition. The species in order of abundance were the Black-footed Albatross (*Diomedea albatrus*), with an average abundance of 2.1 individuals per hour of observation, Leach's Storm-Petrel (*Oceanodroma leucorhoa*) 1.3 individuals per hour, Red-Necked Phalaropes (*Phalaropus lobatus*) .83 individuals per hour, Jaegers (*Stercorarius* spp.) .35 individuals per hour, and Northern Fulmars (*Fulmarus glacialis*) with an abundance of .04 individuals per hour.

FOOD HABITS AND DISTRIBUTION OF COMMON MURRES (*URIA AALGE*) AND SOOTY SHEARWATERS (*PUFFINUS GRISEUS*) OFFSHORE OREGON, JUNE 1984

Matthews, D. R. (Institute of Marine Biology, University of Oregon, Charleston, OR)

Seabirds were censused and collected offshore Oregon in June 1984 in conjunction with salmonid distribution studies conducted by Oregon State University researchers. The study area included the offshore zone from the Columbia River in the north to Coos Bay in the south at a distance of 3 to 37 km offshore. Collection was limited to Common Murres and Sooty Shearwaters. Analysis of stomach contents revealed prey items of the Common Murres to include 10 species of fish and market squid. Diet of the Sooty Shearwaters included three species of fish, five species of cephalopods, Cancer megalopae, and plastic particles. A negative correlation between murre density and distance offshore was demonstrated.

SURVEY OF PIGEON GUILLEMOTS (*CEPPHUS COLUMBA*) NESTING IN ORCA INLET, NORTHEAST GULF OF ALASKA

Mickelson, P. G. (P. O. Box 325, Cordova, AK 99574)

During the summer of 1986, pigeon guillemots (*Cephus columba*) were censused around Mummy Islands about 15 km southeast of Cordova, Alaska. A maximum of 91 adult guillemots were counted on the water in association with four colonies at cliff and cobble nesting sites at Mummy Islands. Based on fish observed captured by guillemots, sand lance (*Ammodytes hexapterus*) were the most important prey species although smelts (*Hypomesus*, *Mallotus*, *Osmerus*, *Thaleichthys*), and pricklebacks (*Lumpenus sagitta*) were commonly available. Potential predators on guillemot adults, eggs, and young included river otters (*Lutra canadensis*), Bald Eagles (*Haliaeetus leucocephalus*), and Ravens (*Corvus cora*), all of which were common near nesting sites.

DIFFERENT DISPERSAL PATTERNS IN TWO POPULATIONS OF THE EASTERN BROWN PELICAN

Mock, P. J. (Biology Dept., Univ. of California, Los Angeles, CA 90024) and R. W. Schreiber (Los Angeles County Natural History Museum, 900 Exposition Blvd., Los Angeles, CA 90007)

Analysis of band recovery data of brown pelicans banded in North and South Carolina and Florida show that the Carolina population is migratory, wintering mostly in Florida. Florida pelicans are primarily year-round Florida residents, except for a sizable minority of the east Florida population which winters in Cuba. Causes of mortality of birds recovered dead indicate that human-induced mortality may be an important source of mortality. Significant differences in recovery interval may indicate that there is increased mortality in the Carolina population due to their migratory habits.

BREEDING SUCCESS AND NEST PRODUCTIVITY OF *FREGATA MAGNIFICENS*, ON SANTA MARGARITA ISLAND, B.C.S., MEXICO

Moreno, L. A., R. Carmona, and J. Guzman (Univ. Autonoma de Baja California Sur, Apartado Postal 219-B, La Paz, B.C.S., Mexico)

During the 1986 breeding cycle starting in February, information on nest and egg losses and chick mortality of the Magnificent Frigatebird (*Fregata magnificens*) was collected. Apparently, the main losses and mortality are caused by wind gusts which blow the chicks off the nests or break branches containing groups of nests.

Based on a growth curve for bill length calculated from the control sample, we estimated the age of chicks obtained from a mixed sample of the whole colony. In this way, we determined the breeding peak of the colony. Nest productivity was also determined using the collected data.

CORMORANTS: SCAPEGOATS OR FISH-HOGS?

Nettleship, D. N. (Canadian Wildlife Service, Bedford Institute of Oceanography, Dartmouth, Nova Scotia B2Y 4A2, Canada)

Cormorants are common residents of marine coasts and inland waters of North America and sea-coasts in tropical and temperate regions through much of the world. They feed in inshore waters mainly on fish, often in large groups where prey is concentrated. Their conspicuousness and breeding/feeding habits have given fishermen through the ages the impression that the birds consume vast quantities of valuable fish. Investigations of the food of Double-crested (*Phalacrocorax auritus*) and Great (*P. carbo*) Cormorants in Atlantic Canada, conducted between 1914 and 1985, have not confirmed this. Instead, these studies indicate that breeding birds feed almost entirely on fish of no economic importance, with immatures and non-breeders sometimes exerting a small local pressure on salmonids associated with inland water systems. Overfishing by man remains the factor most likely responsible for depletion of some commercial fish stocks in coastal marine waters.

ENERGY EXPENDITURES AND DIETS OF ANTARCTIC PENGUINS AND PROCELLARIIFORMS

Obst, B. S. (Dept. of Physiology, Univ. of California, Los Angeles, CA 90024)

Sphenisciform and procellariiform seabirds dominate the Southern Ocean ecosystem. Despite striking differences between the two orders in style of locomotion, foraging behavior, and cost of transport, the daily energy expenditures (DEEs) scale similarly with body size in both groups. In each order, a trend for DEE, expressed as a multiple of the basal metabolic rate, to decline with increasing body size was evident. The percentage of krill (*Euphausia superba*) in the diets of surface-feeding procellariiforms shows a strong, negative correlation with body size. Estimates of the rates of krill capture that would be required to meet the energy requirements of large procellariiforms are prohibitively high, suggesting that this energetic constraint influences diet choice. However, similar sized penguins eat krill to the near exclusion of other prey. The ability to dive frees them from this constraint.

NESTLING ENERGETICS AND ADULT PROVISIONING BEHAVIOR: A TALE OF TWO PETRELS

Obst, B. S. (Dept. of Physiology, Univ. of California, Los Angeles, CA 90024)

I measured the energy requirements of nestling Wilson's Storm-Petrels (WSPs) and aspects of the adult provisioning behavior at Palmer Station, Antarctica. These were compared with data for Leach's Storm-Petrels (LSPs) which breed in a more temperate location. Energy

requirements of WSP nestlings averaged nearly two times greater than those of LSP nestlings. Adult WSPs appear to meet these higher energy demands by increasing both the frequency and energy density of feeds relative to those delivered by LSP adults. Feed size was similar in the two species. During foraging, WSP adults expend 30 percent more energy than LSP adults, suggesting that higher energy demands of the chicks have selected for a more energy-intensive foraging strategy in adults.

SEXUAL DIFFERENCES IN KLEPTOPARASITIC BEHAVIOR OF THE MAGNIFICENT FRIGATEBIRD

Osorno, J. L., C. Macias, C. Llorens, A. Laborde, and J. Ramirez (Dept. de Biología, Facultad de Ciencias, Univ. Nacional Autónoma de México, Apartado Postal 22-027, México, D.F., México)

Attempts at kleptoparasitism by the magnificent frigatebird on several seabird species were recorded during eight days in December 1985 on Isla Isabel, Nayarit, México. Only 55 (4.3 percent) of 1,276 attempts observed were successful. All attempts were carried out by juveniles and adult females, mainly on the blue-footed booby and with lesser frequencies on the brown booby, gulls, and others. The lengths of interactions ranged from 1-148 s, most lasting from 1-40 s. The proportion of successful attempts increased with interaction length up to a limit of 32 s, then declined. The proportion of successful attempts was higher, between 1,200 and 1,600 h, when 100 percent and 70 percent of successful attempts by adult females and juveniles respectively occurred. Adult males did not attack other birds, but robbed nest materials from other adult males. Differences between sexes are discussed in relation to differential parental investment and in relation to the profitability of piracy.

BREEDING OF THE CALIFORNIA LEAST TERN IN ENSENADA OF LA PAZ' B.C.S., MEXICO

Palacios, E., and J. Guzman (Univ. Autónoma de Baja California Sur, Apartado Postal 219-B, La Paz, B.C.S., México)

Data on the breeding of the California least tern (*Sterna antillarum browni*) in the Ensenada of La Paz was collected from 1984 to 1986. The colony size, during this period, has increased to 198 pairs, being one of the most numerous reported for this subspecies. In this paper, we report on the timing of breeding and productivity of the colony. The estimated productivity for 1985 and 1986 was .25 and .47 fledglings per nest, respectively. The main cause of low productivity was human disturbance due to the presence of fishermen on the islet. The main item on the diet was the anchovy (*Anchoa ischana*) which constitutes about 80 percent of it. The recent settlement of this colony on a man-made sand islet is discussed.

AGE-SPECIFIC PATTERNS OF REPRODUCTION IN THE GLAUCOUS-WINGED GULL

Reid, W. V. (Dept. of Zoology NJ-15, Univ. of Washington, Seattle, WA 98195)

I examined age-specific patterns of reproduction in the Glaucous-winged Gull on Protection Island, Washington, from 1983 to 1985. Older gulls tended to nest in the interior of the colony, nested in greater cover, had larger territories, and initiated clutches earlier in the season. Adult condition during incubation, egg size, chick growth rate, and female aggressiveness tended to decrease with age. I discuss reasons why different age-specific patterns have been found in different species of larids, and I discuss the implications of this work for predictions of life-history theory.

DEPENDENCE OF TUFTED PUFFINS ON COMMERCIAL FISH IN THE GULF OF ALASKA AND EASTERN ALEUTIANS

Sanger, G. A., and S. Hatch (Alaska Fish and Wildlife Research Center, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503)

Diets of nestling Tufted Puffins at 13 colonies in the Gulf of Alaska in 1986 showed that use of juvenile Walleye Pollock ranged from heavy at Unimak Pass and the Sandman Reefs to light in the Shumagin, Semidi, and southern Kodiak Islands and light or absent in northern Kodiak and eastward. Pollock were much more important at the Semidis in 1985, which underscores the importance of multi-year studies to understand annual variations. Pacific Sand Lance and occasionally Capelin were the dominant foods in the Shumagin Islands and eastward. Alaskan waters are the only place within the world ranges of these species without a fishery at present. Surveys conducted by the National Marine Fisheries Service for juvenile pollock show promise of providing information on prey availability to Tufted Puffins for the first time in the Gulf of Alaska.

CLUTCH SIZE OF BLACK-LEGGED KITTIWAKES AS CORRELATED WITH THE SPACING ARRANGEMENT OF THEIR NESTS

Sherburne, J. (Dept. of Biology, Fisheries and Wildlife, Univ. of Alaska, Fairbanks, AK 99701)

The black-legged kittiwake, *Rissa tridactyla*, was studied at Round Island, Alaska, for the two summers of 1985 and 1986. The clutch size at individually identifiable nests was related to dispersion of kittiwake nests in the immediate vicinity. Observation plots were randomly selected from all possible sample plots, each containing between 170 and 270 nesting pairs. Four plots were monitored intensively in 1985 and three in 1986. The data reveal strong associations between clutch size and three interrelated nest characteristics: density, distance to nearest neighbor, and spatial arrangement of surrounding nests. Overall, the largest clutches were found in moderately low density areas with an intermediate spacing more completely surrounded by other nesting kittiwakes, whereas more zero-egg clutches were located in high and extremely low density areas more greatly separated from other nests.

PREVALENCE AND EFFECT OF PLASTIC INGESTION IN HAWAIIAN SEABIRDS

Sievert, P. R., L. Sileo (National Wildlife Health Center, 6006 Schroeder Rd., Madison, WI 53711) and Fefer, S. I. (Hawaiian and Pacific Complex National Wildlife Refuge, P. O. Box 51067, Honolulu, HI 96850)

Prevalence of plastic in the digestive tract of 10 species of Hawaiian seabirds, representing three orders (Procellariiformes, Pelecaniformes, Charadriiformes), was examined from April through August 1986. Birds were sampled by stomach pumping or necropsy techniques on Kauai, Tern, Laysan, and Midway Islands. Plastic was present in seven species and located in the proventriculus, ventriculus, or intestines. Survival rates were calculated for Laysan albatross (*Diomedea immutabilis*) chicks artificially fed plastic (0, 100, or 200 cc) and chicks naturally fed plastic by adults during the period 15 May - 31 July. Plastic quantities in naturally fed chicks were determined by endoscope examination of the proventriculus. Chicks ingesting high volumes of plastic had low survival rates. Further study is necessary to determine whether this is a causal relationship.

POSSIBLE BROOD REDUCTION IN HEERMANN'S GULLS (*LARUS HEERMANNI*) ON ISLA RASA B.C., MEXICO

Urrutia, L., and H. Drummond (Dept. de Ecologia, Instituto de Biologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

During 1984, a reproductive colony of Heerman's gulls, where the modal brood size is two and a brood size of three is common, the development of 40 three-egg broods was registered in search of evidence of adaptative brood reduction according to Lack's hypothesis. The difference in hatching success between first and third eggs and between second and third was significant, with 62.5 percent failure of the third. First and second chicks had significantly better fledging success than third chicks, resulting in significant differences between first and third eggs and between first and second eggs with respect to their success. Considering the first 30 days post-hatch, first chicks survived $\bar{x} = 20.94$ days ($n = 34$), second chicks $\bar{x} = 14.37$ days ($n = 32$), and third chicks $\bar{x} = 4.0$ days ($n = 15$). Third eggs had significantly less volume and weighed less than the other two. These parental investment and survivorship patterns are discussed in the context of Lack's theory and what is known of other gulls.

ANALYSIS OF SOME CONDITIONS FOR *LARUS HEERMANNI* IN HIGH DENSITY BREEDING

Vega, J. (Instituto Nacional de Investigaciones sobre Recursos Bioticos, Apartado Postal 219, San Cristobal de las Casas, 29200 Chiapas, Mexico) and E. Velarde (Instituto de Biologia, Dept. de Zoologia, Univ. Nacional Autonoma de Mexico, Apartado Postal 70-153, 04510 Mexico, D.F., Mexico)

A number of surveys was performed on colony-breeding organisms. A conclusion was attained that nesting in high density colonies and synchronously offers certain advantages, i.e., defense against predators, optimum use of food resources and nesting sites, above other. At the same time, there is a compromise between these advantages and the potential disadvantages such as intra-specific aggression and competition, as well as a large possibility of parasitism. The present survey was carried out in Rasa Island, Baja California Norte, Mexico, between 1980-1 with the purpose of analyzing the conditions for breeding of the *Larus heermanni* colony, as well as time and space synchrony and intra-specific aggression in these grouping conditions.

THE INFLUENCE OF POPULATION GROWTH OF SAND LANCE UPON WINTERING SEABIRDS IN SOUTHEASTERN NEW ENGLAND

Veit, R. R., B. M. Braun (Dept. of Ecology and Evolutionary Biology, Univ. of California, Irvine, CA 92717) and B. Nikula (23 Atwood Lane, Chatham, MA 02633)

The data we have presented illustrate a close correspondence between increases in sand lance stock size and increases in numbers of seabirds, especially Herring Gulls (*Larus argentatus*) and Black-legged Kittiwakes (*Rissa tridactyla*), wintering in southeastern New England. Our numerous field observations, combined with those of many other Massachusetts ornithologists, of seabirds of several species eating sand lance strongly suggest that the increases in birds are due to the increase in sand lance. Analysis of Christmas Bird Count data for the Atlantic coast of North America shows that the proportion of Herring Gulls wintering in southeastern New England increased during the years of maximum sand lance abundance. Black-legged Kittiwakes, as well as several other species of seabirds we discuss, seem also to have modified their winter ranges in order to feed upon sand lance in southeastern New England waters.

CONSERVATION OF THE ISLANDS OF THE GULF OF CALIFORNIA

Velarde, E. (Coordinator) (Instituto de Biología, Dept. de Zoología, Univ. Nacional Autónoma de México, Apartado Postal 70-153, 04510 México, D.F., México)

In 1978, 53 islands of the Gulf of California were declared Flora and Fauna Reserves by the Mexican Government. In 1984, a conservation project was jointly elaborated by Daniel W. Anderson from U.C. Davis, Spencer B. Beebe from The Nature Conservancy International, and Enriqueta Velarde from the Institute of Biology, U.N.A.M. The initial part of the program was implemented in 1985 with logistic support from SEDUE and the Mexican Navy. This phase consisted of (1) a compilation of existing information on the state of the islands' flora and fauna and (2) establishment of the actual state of the area's resources through four seasonal visits to 18 locations in the Midriff Island region (involving inventories and/or censuses of the following taxonomic groups: marine and terrestrial botany, carcinology, entomology, helminthology, ictiology, herpetology, land and marine ornithology, land and marine mammalogy). A photography team has also been working in conjunction with the rest of the group. A conservation data base of the available information is being developed. As a result, critical areas and periods of the year are being determined for permanent or periodic protection efforts through joint activities of University and Governmental personnel. Inter-institutional cooperation, local and tourists' involvement for the conservation process is being promoted. Funding sources, both national and international, are being identified.

DISTRIBUTION AND ABUNDANCE OF SEABIRDS IN THE GULF OF CALIFORNIA

Velarde, E., and J. Arriola (Instituto de Biología, Dept. de Zoología, Univ. Nacional Autónoma de México, Apartado Postal 70-153, 04510 México, D.F., México)

The Gulf of California is a sector of the migratory routes of many seabird species. Also, several islands of the area have important seabird nesting colonies. Therefore, this is an ideal area for determining distribution and abundance of seabird species. We made four seasonal seabird censuses, each with an approximate duration of 25 days, mainly in the Midriff area, during one year. We used a transect method with three specific distances: 100, 200, and 300 m. from the observation boat which followed a linear route. The species, age/sex class (when possible), climatic data, and boat position were recorded for each sighting. For the analysis, the Gulf was divided in 10' quadrats. Averages of bird densities were obtained per species, per quadrat. The distribution and abundance is discussed in relation to known upwelling areas, location of nesting colonies, etc. The most frequently censused species were: *Pelecanus occidentalis*, *Larus livens*, *L. heermanni*, *Sula leucogaster*, *S. nebouxii*, *Oceanodroma microsoma*, *O. melania*, *Phalaropus lobatus*, *Podiceps nigricollis* and *Phaeton aethereus*.

DIFFERENTIAL PREDATION OF EGGS IN CLUTCHES OF GLAUCOUS-WINGED GULLS

Verbeek, N. A. M. (Biology Dept., Simon Fraser Univ., Burnaby, B.C. V5A 1S6, Canada)

I recorded the depredation of single eggs from three-egg clutches of Glaucous-winged Gulls (*Larus glaucescens*) by conspecifics and Northwestern Crows (*Corvus caurinus*) to assess whether the predators selected eggs at random or showed a preference for a specific egg in the laying sequence. I found that small and light colored eggs, characteristically the third egg in the clutch, were taken significantly more often than the other two eggs in the clutch. As the chick derived from the third egg is the least likely to fledge, the lightness of the third egg is adaptive.

THE IMPORTANCE OF TIDAL UPWELLING AT ACTIVE PASS, BRITISH COLUMBIA TO PLANKTON-FEEDING BONAPARTE'S AND MEW GULLS

Vermeer, K., I. Szabo, and P. Greisman (Canadian Wildlife Service, c/o Institute of Ocean Sciences, P. O. Box 6000, Sidney, B.C. V8L 4B2, Canada)

The food habits of Bonaparte's (*Larus philadelphia*) and Mew Gulls (*L. canus*) were studied at Active Pass, British Columbia, in relation to upwelling of zooplankton. Bonaparte's Gulls fed mostly on planktonic crustaceans during September-November and again during April-May, while Mew Gulls foraged there chiefly in February and March. Both species ate predominantly the euphausiid, *Thysanoessa raschii*, in spring, while Bonaparte's Gulls fed mainly on the amphipods, *Parathemisto pacifica* and *Calliopius laevisculus*, in fall. Year-round sampling of zooplankton and collection of temperature and salinity data showed gull numbers to correlate with times of maximum upwelling and abundance of zooplankton prey in surface waters. Outside the upwelling zone in Active Pass, Bonaparte's and Mew Gulls fed mostly on fishes and intertidal organisms, but also on zooplankton along tidelines.

THE AVAILABILITY AND NUTRIENT CONTENT OF SEAGRASSES EATEN BY PACIFIC BLACK BRANT AT LAGUNA DE SAN IGNACIO, B.C.S., MEXICO

Ward, D. H. (Alaska Fish and Wildlife Research Center, U.S. Fish and Wildlife Service, 1011 E. Tudor Rd., Anchorage, AK 99503)

The availability and nutrient content of seagrasses at Laguna de San Ignacio were documented and related to the bird's preference for particular foraging habitat from January to March 1983. Brant diet varied with the quality and species of seagrass available. Brant fed on two seagrasses: *Zostera marina* and *Ruppia maritima*. *R. maritima* grew higher in the intertidal, and was less abundant than *Z. marina*. However, Brant used beds of *R. maritima* 60.1 percent of their time, beds of *Z. marina* 34.4 percent, and mixed beds 5.5 percent. The protein content of *R. maritima* (10.7 percent) was significantly higher than that of *Z. marina* (8.6 percent) at the same intertidal height. It is suggested that the protein content and availability of foods play an important part in their selection of foods.

COMMON MURRE AND BRANDT'S CORMORANT BREEDING HABITAT SELECTION ON S.E. FARALLON ISLAND

Warheit, K. I. (Dept. of Paleontology, Univ. of California, Berkeley, CA 94720)

Breeding habitats of Common Murres (CM) and Brandt's Cormorants (BC) on S.E. Farallon Island were quantified and compared for 1985 and 1986. Two scales were used. "Macro" measurements refer to variables quantified on 2-meter² plots. "Micro" measurements are variables associated with actual nest sites. Results show significant differences between CM and BC for both macro and micro measurements. CM chose flat and exposed sites. "Nests" were also placed relatively close to uphill rocks. BC nested randomly with respect to all habitats except on steep slopes where they preferentially braced their nests against downhill rocks.

REGIONAL REPORTS

MEXICO/LATIN AMERICA, ENRIQUETA VELARDE

Chile

Braulio Araya (Universidad de Valparaíso) has been studying the distribution and population status of the Humboldt Penguin along the Chilean coast. He has also written a field guide to the birds of Chile which is in press.

Carlos G. Guerra (Universidad de Antofagasta) has been investigating the breeding biology, physiology, and life history of the Grey Gull (*Larus modestus*) in the Atacama Desert. He has been looking at the water exchange of the chicks as well as the water loss and water vapor conductance of the eggs. He is interested in comparative studies of niche segregation and life histories among the genus *Larus*. He has also been studying the demography, behavior, and bioenergetics of some guano seabirds since 1983. He is also interested in demography of Pelecaniformes, Sphenisciformes, and Charadriiformes (mainly among the genus *Larus*).

Roberto P. Schlatter (Universidad Austral de Chile) has been leading census work on seabirds in the Antarctic, sub-Antarctic, and along the archipelago of southern Chile. He is also directing research on the seabird community of Pan de Azúcar Island, off northern Chile.

Jose Valencia (Universidad de Chile) has been studying the feeding and breeding ecology of Adelie, Chinstrap, and Gentoo Penguins on the Audley Peninsula, Antarctica. He has recently begun to work on Humboldt and Magellanic Penguins at colonies near Santiago. He has also begun a project on guano seabirds, and is heading a program of banding passerines in the bushlands near central Chile.

Claudio Venegas (Universidad de Magallanes) is currently examining the foraging biology of Magellanic and Yellow-crested Penguins. He hopes to do similar studies on the Macaroni Penguin in the near future.

Costa Rica

Michael McCoy (Universidad Nacional) has been leading investigations of Brown Pelicans since 1979. These studies have concentrated on population variation and breeding biology of the birds in the four colonies known in Costa Rica. He runs a large banding program. He is also leading studies of Tree-Ducks and Blue-winged Teal in fresh water marshes near the Pacific coast.

Mexico

Hugh Drummond (Universidad Nacional Autónoma de México) is studying the reproductive biology and behavioral control of brood size in the Blue-footed Booby on Isabela Island, Nayarit, Mexico.

Juan Guzman (Universidad Autonoma de Baja California Sur) is leading research on the distribution and ecology of seabirds in La Paz Bay and adjacent islands as well as seabirds on Santa Margarita Island on the Pacific side of Baja California. Some of the species that the research has concentrated on are: Magnificent Frigatebird (nestling growth patterns; parent-offspring behavioral relations), and Brown Pelican (food habits; distribution).

Enriqueta Velarde (Universidad Nacional Autonoma de Mexico) has projects on Rasa Island, Sea of Cortez, on Heermann's Gulls (behavior patterns; breeding biology; feeding ecology), and Elegant Terns (feeding ecology). She has large color banding programs for both species. She is examining diets of Barn Owls feeding on seabirds and fishing bats on Rasa and Partida Islands. She is also involved with Nature Conservancy International and the Mexican Government in long-term conservation projects for the islands of the Sea of Cortez. These projects involve monitoring the pelagic distribution and abundance of seabirds and censusing of the seabird colonies.

Peru

Victor M. Pulido (Instituto Nacional Forestal y de la Fauna) has been studying shorebirds in two protected areas: Santuario Nacional de las Lagunas de Mejia and the Reserva Nacional de Paracas. These areas are managed by the Instituto Nacional Forestal y de la Fauna.

Humberto Tovar (Instituto del Mar del Peru) has been working on various projects: (1) distribution of seabirds along the Peruvian coast, (2) parental care in seabirds, (3) changes in populations of guano seabirds and sea lions along the Peruvian coast in relation to the El Nino phenomenon, and (4) cetaceans (primarily Bryde's Whales) of the Peruvian stock.

SOUTHERN CALIFORNIA, ZOE EPPLEY

California Channel Islands

Dave Lewis is continuing to monitor Channel Islands seabirds for the Channel Islands National Park Service.

University of California, Los Angeles

Bernice Wenzel with Esmail Meisami, of the University of Illinois, are studying the cellular anatomy of the olfactory mucosa and olfactory bulb in procellariiform species in comparison with other birds.

California State University, Long Beach

Stuart Warter is continuing his studies of the fossil flightless goose/eider *Chendytes* of the California Channel Islands.

Charles Collins is continuing his work on patterns of growth in California Least Terns and is examining colony and yearly differences in growth.

Kathy Keane is finishing her Master's thesis on parental care pattern in California Least Terns.

Connie Boardman is finishing her Master's thesis on pollutant residues found in eggs, chicks, and adults of the California Least Tern.

Barbara Massey continues her long-term studies of the California Least Tern with emphasis on site fidelity, pair bond duration, and age composition of colonies. She is also undertaking a radio-telemetry study of Least Tern foraging in Los Angeles/Long Beach Harbor, assisted by Kathy Keane and Connie Boardman.

Bill Schew, newly arrived from the University of Connecticut is beginning a study of growth and development of Caspian Terns at the newly formed colony at Bolsa Chica Ecological Reserve. He will also be working on a review of the patterns of growth of the Sterninae, using a computer program developed at CSULB to fit data to the Richards growth model. He solicits any original data, published or not, for this project and in return will provide copies of the analysis for publication elsewhere. Here is a good chance to get a free analysis of any tern growth data sets lingering in field notes or files.

University of California, Irvine

Zoe Eppley is beginning a doctoral dissertation with Al Bennett on the ontogeny of endothermy in charadriiformes, its functional basis, and ecological and phylogenetic variations.

George Hunt, Dennis Heinemann and Dick Veit with Inigo Everson, Peter Prince and John Croxall of the British Antarctic Survey are involved in a study which examines the spatial and temporal correlations of seabirds and fur seals with krill around South Georgia Island.

George Hunt and Nancy Harrison are finishing up a three-year field study of the pelagic distribution of Least Auklets and their prey (calanoid copepods) in the northern Bering Sea. The study contrasts distributions around colonies in different water masses to assess the relative importance of large scale and small scale oceanographic features to foraging auklets. Bryan Obst, UCLA; Zoe Eppley, Carol Williams, UCI; Ted Cooney and Ken Coyle, U. Alaska, are also involved in this project.

George Hunt, Beth Flint, Margaret Rubega from UCI, Peter Prince from the British Antarctic Survey, and Ted Cooney and Ken Coyle from the University of Alaska, Fairbanks, are beginning a three-year project on the Pribilof Islands, Bering Sea. The project compares prey abundance, foraging distribution, and energetics of Black-legged Kittiwakes, Red-legged Kittiwakes, and Thick-billed Murres to their reproductive performance. Prey abundance will be assessed using bioacoustics and net tows. Doubly labeled water in combination with activity and dive recorders will be used to assess energetics. They may be looking for volunteers for Summer 1987 and 1988; write George Hunt, Eco/Evo Biology, UCI, Irvine, CA 92717 for further information.

Carol Williams is beginning a study on the behavior and energetics of the shift from brooding to less intensive chick guarding in boobies.

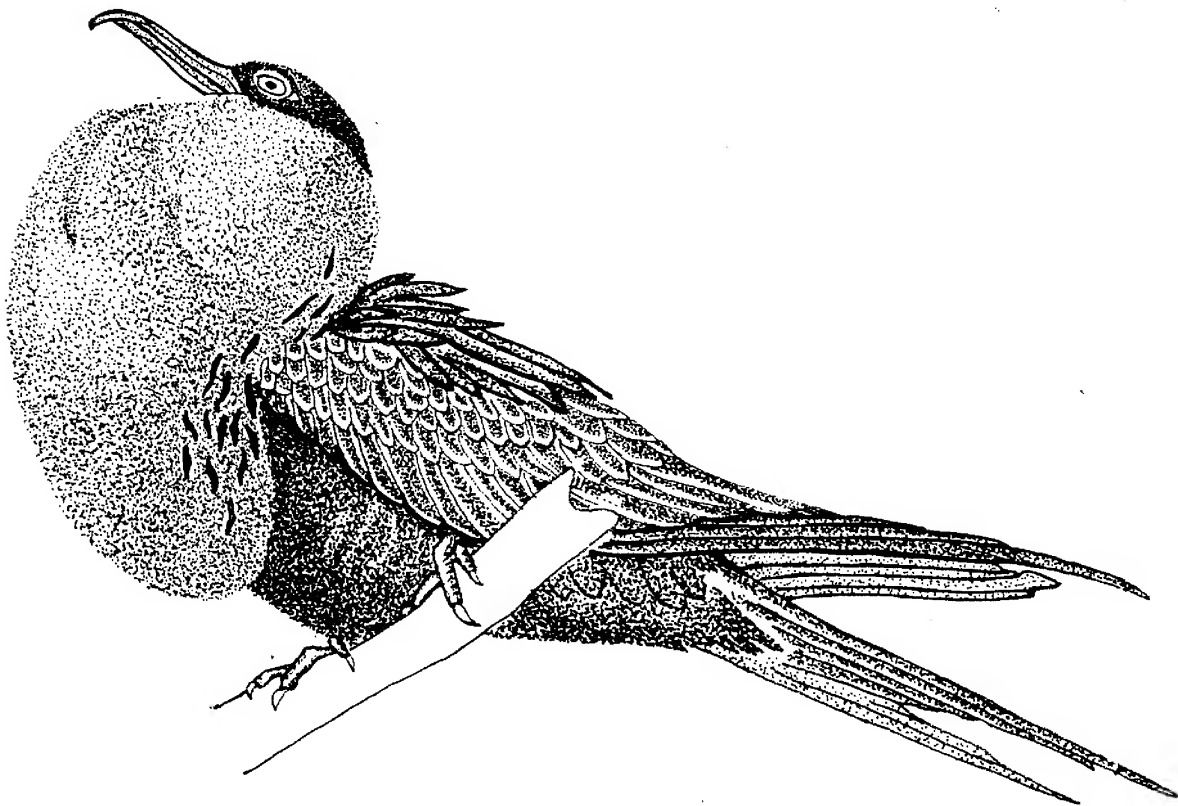
Nancy Harrison is finishing her Ph.D. on comparative foraging behavior in *Aethia* auklets and their use of transient oceanographic features, including internal waves.

University of San Diego

Hugh Ellis is investigating the functional basis for lower resting metabolic rates in dark seabirds.

San Diego Natural History Museum

William Everett is working on the marine birds of Baja California's west coast and offshore islands, with particular attention to Black-vented Shearwaters.



WASHINGTON REPORT, DAPHNE GEMMILL

Environmental issues were a hot topic in the 99th Congress. Numerous bills directly or indirectly affecting seabirds, shorebirds, and waders reached the President's desk with one notable exception, the reauthorization of the Endangered Species Act. And Congress once again rejected President Reagan's proposals to slash environmental/wildlife budgets.

Towards the end of the session, four new issues were commanding Congressional attention - incidental catch of seabirds in driftnets, plastics in the marine environment, effect on the marine environment of chemicals in marine paints, and seabed mining. These bills will be reintroduced in the next session of Congress.

Most of the major national environmental groups such as the Environmental Defense Fund, Center for Environmental Education (CEE), Defenders of Wildlife, and Friends of the Earth are now covering incidental catch and marine plastics, along with the New York Times.

In fact, CEE is compiling a monograph on entanglement that will be published in atlas form and evaluating the feasibility of establishing a national centralized system for compiling information on entanglement. CEE also is under contract with the U.S. Environmental Protection Agency (EPA) to assess problems caused by nonbiodegradable plastic debris in the marine and Great Lakes environments and to identify the agencies and regulations that can help solve the problem.

NEW LEGISLATIVE ACTIONS

Driftnet Impact Monitoring, Assessment, and Control Act of 1986

Senator Ted Stevens (R-Alaska) and Representative Charles Bennett (D-Florida) introduced this bill in July in an attempt to halt the unnecessary killing of large numbers of Dall's porpoises and seabirds. The Japanese mother ship salmon fleet, which constitutes 10 percent of the total number of fishing vessels in the North Pacific, is estimated to kill 500,000 to 750,000 seabirds each year. Steven's bill would first require that a U.S. observer be aboard all foreign fishing vessels that fish in U.S. waters. The bill also would require the Secretary of State to set up a program of international scientific monitoring and assessments on the impact of driftnet fishery techniques. Third, the bill would require the Secretary of Commerce to develop recommendations on a system of net marking and identification. The Commerce Secretary would also be required to pay a bounty for the retrieval of ghostnets. The bill would set a 60-mile "seabird protection zone" around the Aleutian Islands where all driftnet fishing would be prohibited.

Plastic Waste Reduction Act of 1986

In August, Senator John H. Chafee (R-Rhode Island) introduced a two-part bill that would (1) require EPA to assess the adverse impact of discarded plastics on the environment and (2) ban the sale of nondegradable plastic six-pack beverage holders and require manufacturers of such holders to switch to degradable plastic within six months. In addition, EPA would make recommendations to Congress within 18 months on proposed legislation to deal with the problems.

Marine Paints

The House Merchant Marine and Fisheries Committee held hearings on the effects on the marine environment of chemicals in antifoulant marine paints. The chemical Tributyltin (TBT),

which is used in underwater paints that prevent barnacles and other encrusting organisms from building up on the bottom of ships, is suspected by some to have lethal effect on many fish and shellfish species.

Exclusive Economic Zone Mining

In 1983, President Reagan declared an Exclusive Economic Zone (EEZ) that gave U.S. interests the sole right to explore and exploit mineral and living resources within 200 miles of U.S. shore. The EEZ declaration created confusion over mineral leasing and management jurisdiction within the zone. Mike Lowry (D-Washington) introduced a bill that would split U.S. seabed mining authorities between agencies. Interior Department's Minerals Management Service would be responsible for issuing hard mineral exploration licenses and recovery permits and Commerce's National Oceanographic and Atmospheric Administration (NOAA) would have authority for environmental monitoring. The bill would also include a state-federal consultation process of oversight of mining activities and consistency with coastal zone management plans.

LEGISLATION THAT PASSED

Interior Department Appropriations

Congress agreed to provide a total of \$4.1 billion for the Interior Department for FY 87. The figure represents a 5 percent increase over the FY 86 funding levels, which the administration had proposed to cut by 6 percent. Funding exceeds the administration request for all of the major natural resources and land management agencies. For example, Congress approved \$153 million for federal conservation units such as wildlife refuges, parks, and forest lands, and \$35 million for grants to state parkland acquisition and development programs. The administration requested \$20 million for federal land purchases and nothing for state grants. Congress approved \$315 million for the Fish and Wildlife Service for resources management and \$42 million for land acquisition. The administration had requested \$285 million and \$2 million, respectively. In addition, Congress added provisions to the bill that would effectively delay the sale of oil and gas leases off the California coast until 1989 and continue the moratorium in the North Atlantic's Georges Banks.

National Oceanographic and Atmospheric Administration (NOAA) Appropriations

The administration proposed a 45 percent reduction in NOAA's budget for FY 87. Instead, Congress increased the budget by 2 percent over FY 86. Programs benefitting are nonmineral marine resources, sea grant college educational and research program, coastal zone management state grants, and marine fishery resource program.

Emergency Wetlands Resources Act of 1986

This Act, which was signed by the President on November 10th, extends the Interior Department's borrowing authority under the 1961 Wetlands Loan Act from October 1, 1986 to 1988. Other provisions include new funding sources for wetlands acquisition, such as admission fees at some of the nation's wildlife refuges, increased Duck Stamp fees and duties on imported firearms and ammunition. Of particular note, the bill changes the language in the 1965 Land and Water Conservation Fund Act to specifically authorize purchase of migratory bird habitats.

The Bayou Sauvage Urban National Wildlife Refuge

An amendment to the preceding Act designated a large wetlands area in eastern New Orleans as a new national wildlife refuge. Thousands of wading birds and shorebirds utilize the refuge along with approximately 50,000 wintering ducks and geese.

Convention on Wetlands of International Importance

The Senate ratified the RAMSAR Treaty. This convention was adopted in 1971 in Ramsar, Iran, and entered into force in 1975. The convention provides that each contracting party designate at least one wetland within its territory for inclusion on a list of wetlands of international importance, promote the conservation of wetland and waterfowl by establishing nature reserves on wetlands and encouraging research and the exchange of data regarding wetlands and their flora and fauna. The Okefenokee Swamp, the second largest freshwater swamp in our country, covering 700 square miles along the Georgia-Florida border, together with Nevada's Ash Meadow, New Jersey's Brigantine, and Alaska's Izenback, will be included on the list of "Wetlands of International Importance."

Coastal Zone Management Act

On April 7, President Reagan signed a bill reauthorizing this Act for four years. The Act provides between \$41 and \$51 billion for state and local governments to manage cooperatively more than 95,000 miles of beaches, bays, ports, harbors, wetlands, estuaries, islands, and fisheries. However, the states will be required to take on progressively more of the costs of running their own coastal programs.

Marine Protection, Research and Sanctuaries Act - Title II

After four years of impasse, Congress finally reauthorized this Act (also known as the Ocean Dumping Act). Title II authorizes NOAA to conduct comprehensive research on ocean dumping and the long-range effects of pollution on ocean ecosystems.

Deep Seabed Minerals Resources Reauthorization Act of 1986

The President signed the bill to reauthorize NOAA's deep seabed minerals program, established in 1980. The seabed act gives NOAA authority to issue licenses for exploration and permits for commercial recovery of manganese nodules in the deep seabed outside of U.S. waters. To date, NOAA has granted exploration licenses to four U.S. mining consortia. Depressed world metals markets have dimmed prospects for any commercial recovery before the year 2000. In August 1984, the U.S. and seven other countries with interest in seabed mining signed the "Reciprocating States Agreement" aimed at avoiding conflicts over mining sites and providing minimum requirements for resource conservation and environmental protection.

Fish and Wildlife Conservation Act of 1980

This Act (also known as the Federal Nongame Act) is intended to provide matching funds to states for nongame species. President Reagan signed the bill reauthorizing this Act until 1988. Unfortunately, Congress has not appropriated any money to fund nongame conservation programs. Defenders of Wildlife is spearheading a campaign to secure \$50 million for protection of nongame species. Among funding possibilities are higher permit fees for developers of federal

lands, such as ski resort operators, and excise tax on equipment used by nonhunting wildlife enthusiasts.

Fisheries Conservation and Management Act

First enacted in 1976, this Act provides for the management of fisheries from three to two hundred miles offshore. New provisions require that protection of habitat be an integral part of ocean fisheries management. The President signed this bill on November 15th.

Sikes Act

This Act, which the President signed on November 6th, governs fish and wildlife conservation on 25 million acres of military reservations.

Tax Reform Act

Important changes were made in our tax laws which will have a substantial impact on the nation's environment. Oil and gas exploration, soil erosion, and development of our coasts are all significantly affected by the U.S. tax code. For example, preferential tax treatment for farmers who plow highly erodible lands and wetlands has been repealed.

Protecting Biodiversity in Developing Countries

This bill, signed by the President on October 24th, amends the 1961 Foreign Assistance Act to increase the authority of the Administrator of the Agency for International Development (AID) to stress the long-term economic benefit of conserving biological diversity, support training that would improve the ability of recipient countries to prevent species loss and identify ecosystems worthy of protection, provide additional assistance for the establishment of protected areas and review AID policies to ensure the agency's actions do not have adverse impacts on biological diversity and deny assistance that would degrade protected areas. Funding is provided for FY 87 only.

LEGISLATION THAT FAILED

Endangered Species Act

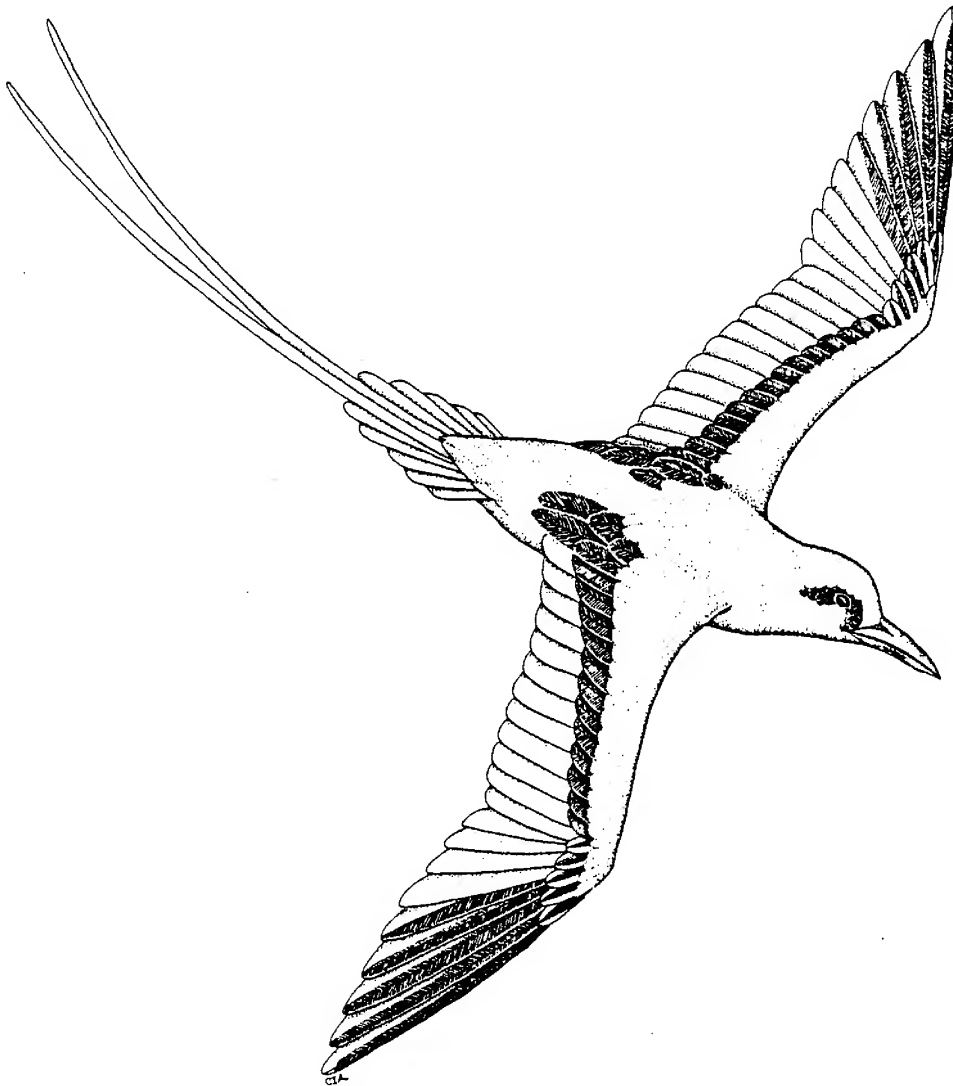
Passed in 1973, this Act provides strict protection for endangered animal and plant species. The Act expired at the end of 1985. A three-year authorization had passed the House in July of 1985 but never passed the Senate due to opposition from several key Senators whose pet projects were in jeopardy due to protection of endangered species. As long as Congress appropriates funds (and they did for FY 87), the Fish and Wildlife Service can continue to operate the endangered species program.

Annex V to the MARPOL International Treaty

MARPOL is the primary international treaty for preventing and controlling the discharge of pollutants from ships. Annex V, now ratified by 18 nations, outlaws the dumping of plastics at sea. Ratification by the U.S. Senate would help bring this ban into force and would be a major step toward reducing global plastic pollution. Without Annex V in force, scientists estimate that commercial fishing fleets are dumping more than 52 million pounds of plastic packaging

material into the sea every year, plus 298 million pounds of plastic fishing nets and lines. Every day, an estimated 640,000 individual plastic containers are dumped overboard.

Many of the recently elected Representatives and Senators have a strong environmental voting record. The 100th Congress, which convened in January, is expected to pursue a broad environmental agenda.



SURVEY OF THE U.S. FISH AND WILDLIFE SERVICE INVOLVEMENT IN SEABIRD STUDIES

In 1986, there was concern that the U.S. Fish and Wildlife Service was decreasing its commitment to seabird research and seabird conservation. The Pacific Seabird Group began a survey of federally funded research in five Pacific states. Lora Leschner, then chair of PSG, wrote to Congressman Jones, indicating our concern (see PSG Bulletin 13.1). More recently, Lora wrote also to Frank Dunkle, Director of the U.S. Fish and Wildlife Service:

November 18, 1986

Frank Dunkle, Director
U.S. Fish and Wildlife Service
U.S. Department of the Interior
Main Interior Building, Rm 3256
Washington, D.C. 20240

Dear Director Dunkle:

The Pacific Seabird Group (PSG) is a scientific organization composed of seabird researchers and conservationists dedicated to the study and conservation of Pacific seabirds and their environment. The PSG was formed in 1972 and now has over 600 members from 16 countries. An information pamphlet on the activities and scope of the PSG is enclosed.

Since the PSG was first formed, we have seen state and federal interest and involvement in marine bird research and management go from a low level in the early 1970's to major programs by the early 1980's. The United States Fish and Wildlife Service (USFWS) played a major role in this increased and necessary activity, and it has been the major impetus for research and conservation of Pacific seabirds. For example, the USFWS has produced seabird colony catalogs and has established wildlife refuges protecting major seabird colonies in all of the Pacific Basin states. The USFWS has supported numerous scientific research publications on seabirds by researchers from other federal, state, and institutional organizations.

The PSG Executive Council has been informed of a number of instances where personnel and funding were diverted away from seabird research and management activities. This change in focus is apparently related to budget cuts and the need for increased attention to declining gamebird populations. While there are numerous agencies and organizations that continue to conduct marine bird research and management, the USFWS is the logical (and mandated) principal agency concerned with developing long-term conservation, management, and research programs relating to seabirds.

The PSG is concerned that seabird research and management are being de-emphasized just at a time when real and potential impacts on seabirds and their marine environment are increasing. We would like to know if USFWS has rearranged its priorities regarding seabirds. If so, is this a short-term change or one that reflects the agency's future commitment to seabirds and other nongame species?

PSG is initiating an annual survey of federal- and state-supported seabird research. In addition to answering our questions regarding changes in priorities and long-term commitment to nongame management, please send us a list of all research projects currently supported and/or conducted by

the USFWS in Alaska, Hawaii, Washington, Oregon, California, and western Mexico. Please indicate the personnel and funding dedicated to each project.

We look forward to hearing from you. The continued support of seabird research and management is a matter of critical importance to the management of all marine resources.

Sincerely,

THE PACIFIC SEABIRD GROUP

Lora L. Leschner, Chair

NEW MEXICAN RESEARCH PERMIT APPLICATION REQUIREMENTS

The Government of Mexico recently compiled regulations establishing the requirement that all scientific and archaeological research arising from foreign researchers and to be conducted in Mexico must be processed through diplomatic channels from the researcher's government and embassy to the Secretariat of Foreign Relations (SRE) in Mexico City. These regulations include requests for approval, amendments, and all other correspondence related to any proposed research. The regulations apply to all individual researchers, institutions, organizations, and government agencies. They apply to all cases involving joint ventures with or invitations from Mexican scientists, institutions, organizations, and government agencies.

In the case of American scientists proposing research in Mexican territory, waters, or air space, all requests must be processed through the State Department in Washington, D.C., to the Embassy in Mexico City for presentation by diplomatic note to the SRE. Any research which does not follow this request procedure will be considered illegal by the Mexican Government.

Research cannot be conducted without the specific, written approval of the Government of Mexico in the form of a diplomatic note from the SRE. The approval, if and when granted, may indicate special conditions which apply to the proposed research. All details of the approval, including conditions, must be followed to the letter. Any research activity conducted outside of the approved research will be considered illegal.

In addition to the above, the SRE, on behalf of the Mexican Government, requires that specific information be provided in the request, in accordance with the type of research to be conducted. Specific requirements are very detailed. Compliance with the requirements does not ensure approval: the Mexican Government reserves the right to approve or deny requests for whatever reason it deems sufficient.

If you would like additional information, contact:

Dr. Herbert A. Raffaele
U.S. Fish and Wildlife Service
Department of the Interior
Office of International Affairs
18th and E st., N.W., Room 2441
Washington, D.C. 20240

phone: (202) 343-5188

CONSERVATION SECTION

Penguin deaths in the Falkland Islands

Considerable publicity has been given to the reports of substantial mortality of Rockhopper penguins *Eudyptes crestatus* at the Falkland Islands in early 1986. Field data were collected chiefly by Ian Strange and Dr. Andrew Douse, and much of this was summarized by Dr. S. Lyster in the Falkland Island Foundation Newsletter No. 5:2-4 (1986).

The most detailed information came from New Island. Unusual (but not unprecedented) numbers of dead chicks were reported on 16 Feb. and 7 March. Some 160 dead probable adults were recorded on 16-17 Feb. Postmortems of five birds showed poor physical condition (weight half normal) with breast muscles particularly reduced. Black-browed albatrosses *Diomedea melanophrys* and King Shags *Phalacrocorax atriceps albiventer* breeding at the same sites appeared normal, and all other Rockhopper penguin colonies visited in Jan.-Feb. showed no abnormal features. In late March, surveys of colonies during the molt period also revealed birds in apparently normal condition. However, in early April, "hundreds" of dead adult penguins (mainly Rockhoppers but including some Gentoos *Pygoscelis papua*) were reported from several widely separated colonies, and 3,000 dead adult Rockhoppers were counted at New Island on 25 May. This date is several weeks after molted birds would normally have returned to sea. In April, there were reports of live, but very sick, birds showing poor neuromuscular coordination and sometimes paralysis. Some birds also showed lesions on their feet. Postmortems of birds collected at this time apparently revealed evidence of ornithosis in some specimens.

Except in the latter cases, there have been no indications of pathological conditions, and the proximate cause of death was invariably concluded to be starvation. How this came about remains a mystery. In the absence of obvious effects on other species, it is difficult to understand why adequate food should not have been available for Rockhopper penguins, yet they appeared to suffer locally poor breeding success, unusual adult mortality during the breeding season, and then very unusual high mortality during moult, which may have been substantially delayed. All this does suggest some change in marine conditions but, obviously, the influence of viral disease cannot be ruled out.

J. P. Croxall

Proposal for a landing strip at Sub-Antarctic Marion Island

The South African Government Department of Environment Affairs has proposed the construction of a landing strip for fixed-wing airplanes at sub-Antarctic Marion Islands, a South African possession in the southern Indian Ocean. An environmental impact assessment panel has been appointed to comment on the proposal. The enclosed press clippings give the background to the issue.

The African Seabird Group is of the opinion that a landing strip should *not* be constructed at Marion Island because of the inevitable environmental problems it will cause. Examples are increased levels of human disturbance and pollution, greatly increased risks of introduction of alien species, direct effects on seabirds by construction activities at their breeding sites, the very real dangers of "bird strikes," and the esthetic effects of introducing vehicular traffic to a "wilderness area," which has known nothing but foot traffic since the first sealers arrived in 1802, over 180 years ago.

The PSG is opposed to the recent transfer of a National Wildlife Refuge to Olympic National Park. The islands of the Quillayute Needles and Flattery Rocks National Wildlife Refuge were included in the National Park in the "Park Boundary Bill," S 2351. We believe that these refuges should be restored to the U.S. Fish and Wildlife Service (USFWS).

Eighty percent of Washington's seabirds nest on the islands in these coastal refuges. The area was established as a refuge in 1980, specifically to protect the large population of migratory birds. This population is one of the greatest remaining concentrations in the lower 48 states.

The exploration and establishment of this refuge was very significant to ornithological history. W. L. Dawson, one of the most famous Pacific Coast ornithologists, was employed by the Biological Service (now USFWS) to explore the islands. He describes the large seabird colonies in great detail in his book *Birds of Washington*. Franklin D. Roosevelt established the refuge, and it should remain a refuge to honor his memory. Washington's coastal islands are recognized worldwide as seabird refuges. The beauty of these islands may be appreciated from the shore, but their significance as a sanctuary for Pacific wildlife has long been recognized.

The Islands should be managed by an agency whose responsibility is wildlife. National Parks are entrusted with outdoor recreation and the preservation of natural features. Wildlife is treated as part of the "Park Ecosystem," but the management of birds is not considered the primary function of the park. Park biologists must manage a large number of wildlife species in a variety of habitats. The specialization required to study and manage seabirds is generally not possible.

The management of seabirds extends well beyond park boundaries. Many seabird species migrate to California, South America, the mid-Pacific, and the Bering Sea. An organization of international, federal and state agencies, the Pacific Flyway, has been established to discuss the management of migratory birds in the Pacific. U.S. Fish and Wildlife Service is the leader of this organization and handles all the policies, regulations, etc., that the group generates. Communication between biologists in different countries and states is necessary if a population of migratory seabirds is to be correctly managed. In addition, the birds spend relatively little time actually on the refuge. Research into the "At Sea" portion of the breeding season is necessary. USFWS already has an established management program that includes boat and aerial surveys of the entire coastal area, "At Sea" inventories, and coordination of research and management of activities throughout the flyway. Park biologists, on the other hand, rarely work outside of the National Park.

The USFWS has spent years building a data base on Pacific seabirds. Transfer of part of the coastal islands to another agency would disrupt the system and result in incomplete information. Inclusion of these two refuges into the National Park splits the jurisdictions managing the islands. Some of the islands remain as a National Wildlife Refuge. The joint jurisdiction may result in differing management goals and incomplete data collection.

The withdrawal and transfer of these refuges establishes an alarming precedent. The seabird populations may be protected in this case by a National Park, but now that the precedent has been established, what about the possibility of refuge transfers to agencies that exploit rather than protect resources?

We have heard that some "housekeeping" actions are necessary for the "Park Boundary Bill," S 2351 and that the bill will be reviewed in the 1987 session. We urge you to delete Section 1.a.2. of S 2351. Leave the seabird colonies in the National Refuge System.

I am writing to you because of your membership of the African Seabird Group and/or your interest in the conservation of seabirds and sub-Antarctic island habitats. I request that you seriously consider writing to the EIA panel expressing your opinions about the deleterious effects of the proposed landing strip. The address is:

The Chairman
Environmental Impact Assessment Panel
Marion Island Landing Strip
c/o Office of the President
Council for Scientific & Industrial Research
P. O. Box 395
Pretoria
South Africa

Your submission should be sent as soon as possible since the EIA panel has been requested to submit its report to the Department of Environment Affairs in March of this year.

The African Seabird Group believes strongly that sub-Antarctic islands, one of the least disturbed natural environments in the world, should never be opened to air traffic by fixed-wing airplanes. A landing strip at Marion Island will be analogous to the opening of "Pandora's box." Quite literally, the island will never be the same again.

Yours sincerely,

John Cooper
Chairman, African Seabird Group

Conservation Issues - Washington

During recent federal legislation, Quillayute Needles and Flattery Rocks National Wildlife Refuge were transferred from the U.S. Fish and Wildlife Service to the National Parks Service. Because the National Parks Service is entrusted with outdoor recreation and preservation of natural features, PSG has concern that the seabirds on these islands will not receive proper protection. The legislation will be reviewed by Congress in 1987, and there is a chance that the previous decisions will be reversed. Lora Leschner has written to Senator Evans explaining the concerns of PSG:

November 25, 1986

Senator Dan Evans
702 Hart
Senate Office Building
Washington, D.C. 20510

Dear Senator Evans:

The Pacific Seabird Group (PSG) is a scientific organization composed of seabird researchers and conservationists dedicated to the study and conservation of Pacific Seabirds and their environment. The PSG was formed in 1972 and now has over 600 members. An information pamphlet on the activities and scope of the PSG is enclosed.

The United States Fish and Wildlife Service is the agency mandated to protect and manage migratory birds. Transfer of the refuge islands to another agency is outside of that mandate, is contrary to ornithological history, sets a precedent, and could threaten existing management which has resulted in a relatively stable and secure wildlife population.

Sincerely,

Lora L. Leschner, Chair

California gillnet problems

During the last few years, considerable concern has been generated about seabird mortality associated with the increasing gillnet fishery, especially off the California coast. Following the last annual PSG meeting where the problem was discussed, Ken Briggs expressed our concern and willingness to become involved in finding an appropriate solution to the problem in a letter to the California Department of Fish and Game:

Mr. Robert Fletcher
Assistant Director
California Department of Fish and Game
1416-9th Street
Sacramento, California

15 December 1986

Dear Mr. Fletcher:

The Pacific Seabird Group is dedicated to research and conservation of marine birds of the Pacific Ocean and around the world. We have been following the issue of gillnet and trammelnet mortality of seabirds in central California for many years and have become aware of the current reevaluation of the situation being undertaken by the Department of Fish and Game. We believe that further protection of marine birds is imperative in response to continued high levels of mortality in nets, the disappearance of one of eight central California breeding colonies of Common Murres, and the sharply declining numbers of murres throughout central California.

Our concerns are several-fold. As recently as 1982, the Farallon Islands hosted the second largest murre colony south of Alaska; this colony has great local, national, and international significance. Two of the seven murre colonies remaining in central California are located in the Farallon Islands National Wildlife Refuge, and five of the seven are in the Point Reyes-Farallones National Marine Sanctuary, where many thousands view the colonies each year. It is our opinion that these colonies cannot survive further losses from fishing-related mortality. Even now, we question the ability of these populations to survive over time.

The Pacific Seabird Group urges the California Department of Fish and Game to take very strong action to completely halt net mortality of murres in central California. With a worldwide membership of over 400 scientists, managers, and concerned amateur ornithologists, we stand ready with considerable local and international expertise to assist the Department in consideration of suitable regulatory options.

Thank you for your attention and concern.
Sincerely,

Kenneth T. Briggs
Chair, Pacific Seabird Group

INTERNATIONAL COUNCIL FOR BIRD PRESERVATION

ICBP World Conference, Kingston, Ontario, 15-21 June 1986

The ICBP Seabird Specialist Group met on June 20 and 21 at the recent ICBP World Conference. Ralph Schreiber and John Croxall led the meetings. It was agreed that the main purposes of the Seabird Specialist Group are to pursue the following: (1) identify and highlight local and more widespread seabird conservation issues, (2) provide specialist advice on these issues to the ICBP directorate, and (3) promote action on these issues. Ralph will welcome suggestions as to which species and locales should be highlighted and how the Seabird Specialist Group can best serve the conservation community in finding solutions to the problems of preserving seabird populations.

The Seabird Specialist Group is open to all those who wish to participate actively in the group. At present, Ralph Schreiber is the chair, with an advisory group including Brian Bell, John Croxall, Patti McGill-Harelsstad, and Sandy Sprunt. The group encourages suggestions and involvement from anyone who is interested in participating. Because the various seabird groups that exist have efficient communication networks, it was felt that the Seabird Specialist Group would communicate through these existing groups.

The Specialist Group is working on a supplement to the ICBP Technical Bulletin No. 2 on *Status and Conservation of the World's Seabirds*. John Croxall will compile and edit this volume. It will include treatments of areas not covered in the original volume and more detailed accounts of areas covered only in general terms in that volume. We hope to include accounts for at least Argentina, Brazil, British Columbia, Canada (mainly inland regions), Fiji, India, Malaya, the Marianas, Nicaragua, and Thailand. A copy deadline of 31 December 1988 was established with publication date in late 1989. Comments and suggestions on areas to cover and authors to write accounts will be appreciated.

Two initiatives were developed. Ian Nisbet is chairing an ad hoc group to review marine pollution: threats and issues. Warren King is reviewing the problem of "incidental take" of seabirds by gill netting and other fishing activities and formulating plans for further action on this issue.

The next ICBP World Conference will be held in New Zealand in 1990. The Seabird Specialist Group has proposed two workshops/symposia for that meeting. It is anticipated that a one-day symposium and one-day workshop will be allotted for each topic. Both will result in technical bulletin publications. One will deal with *Rare and Endangered Seabird Species, a Global View*. This will include a synthesis of all relevant historical biological, and conservation data in a species account format. The coordinating committee includes N. Collar, J. Croxall, P. McGill-Harelsstad, and I. Robertson. The second topic will deal with the *Conservation of Seabirds on Islands, Theoretical Conditions and Pragmatic Solutions*. The coordinating committee consists of B. Bell, J. Burger, B. Reville, and D. Wingate.

The ICBP Seabird Specialist Group encourages the participation of all those who are interested in becoming involved in seabird conservation.

Ralph W. Schreiber

U.S. Section, ICBP, meeting, New York, 15 April 1986

The main items on the agenda were (1) the California Condor issue, stimulated by a report given by John Ogden, (2) Japan's intent to build, at the request of the U.S. Government, a 55-square kilometer runway on Miyakejima, in the Izu Islands (ICBP President R. Peterson has contacted the U.S. Navy, stating ICBP concerns and suggesting a meeting), and (3) an update on Canadian-U.S. efforts regarding diminishing Black Duck numbers.

The sole seabird item was a request (from Walter Reid, Dee Boersma, and Eugene Brickley) for a monetary grant to evaluate, for seabird impacts, the upcoming National Marine Fisheries Service Draft Environmental Impact Statement (NMFS/DEIS) on the Incidental Take of Dall's Porpoises by the Japanese Salmon Fishery. The sections was unwilling at the time to make such a grant because, among other reasons, the NMFS/DEIS had not yet been issued.

Ron Naveen

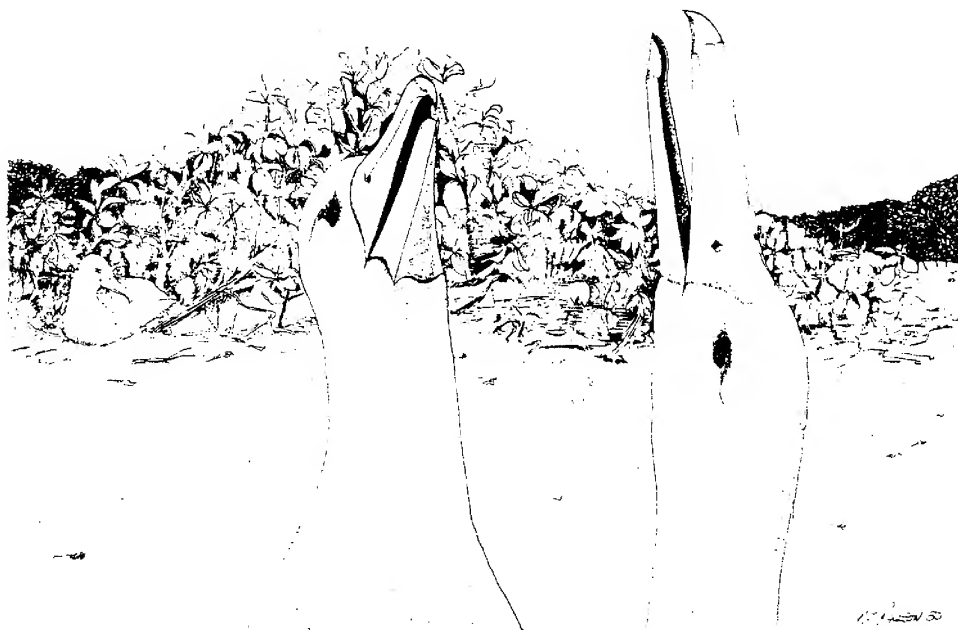
Update to the U.S. Section meeting

The National Marine Fisheries Service Draft Environmental Impact Statement (NMFS/DEIS) has subsequently been issued. It includes a summary of seabird mortality based, apparently, on much information from Tony DeGange that is in preparation. There is some concern that seabird mortality is not accurately represented in the NMFS/DEIS. The formal Administrative Law Judge hearings on the proposed Marine Mammal Act permit began in December 1986. Seabirds were expected to be a major issue, pushed heavily by Greenpeace.

David Wingate had alerted the U.S. Section that the U.S. Navy was considering major construction work at the U.S. naval base in Bermuda. This posed a potential threat to the Cahows. The latest word from the Navy concerning this construction was that it is not in the immediate plans. David Wingate is keeping close track of the situation.

The next meeting of the U.S. Section took place on December 4, 1986, at the National Zoological Park, Washington, D.C. A report from this meeting will appear in the next PSG Bulletin.

Ron Naveen



INTERNATIONAL ORNITHOLOGICAL CONGRESS

STANDING COMMITTEE FOR THE COORDINATION OF SEABIRD RESEARCH MEETING AT THE IOC IN OTTAWA, CANADA, 27 JUNE 1986

Opening of meeting and adoption of agenda

The chairman of the Standing Committee, D. N. Nettleship, welcomed members of the Committee and all others present to the open meeting of the Committee. Regrets were received from P. H. Becker, P. A. Buckley, J. Cooper, J. Coulson, P. G. H. Evans, C. Jouanin, and W. R. Siegfried. The agenda was adopted. The chairman briefly outlined the history of the Committee, with particular attention to its role in relation to the International Council for Bird Preservation (IDBP) Seabird Specialist Group.

Minutes of the meeting at IVIIIth IOC, Moscow, 1982

The previous chairman of the Standing Committee, G. E. Watson, presented an oral report. He noted that the main items discussed had been U.S.S.R. seabird research, coordination of methods of recording seabirds at sea, and the desirability of promoting seabird symposia at the XIXth IOC.

G. L. Hunt, Jr. and R. W. Abrams reported on the establishment of the subcommittee for the coordination of seabird at-sea research. G. Hunt had, as requested, prepared a draft list of participants and an operational protocol for a workshop on this topic. This had been sent to G. Watson, but no further action had taken place.

P. Devillers reported that issues concerning seabird nomenclature and taxonomy had been thoroughly discussed during a Round-table Discussion (RTD) which he had organized and chaired at the present congress. P. Devillers would be proposing to hold a similar meeting during the next IOC.

ICBP Seabird Specialist Group Meeting

The ICBP Seabird Specialist Group met during the ICBP World Conference in Kingston, Ontario, Canada on 20-21 June 1986. R. W. Schreiber, chairman of that group, reported on the main outcome of that meeting. This is summarized in ICBP section of this PSG Bulletin.

Scientific Committee on Antarctic Research (SCAR): Bird Biology Subcommittee

The SCAR Group met on 9-10 June 1986 in San Diego, California. J. P. Croxall, chairman, presented a brief report on the main items. The Subcommittee at present comprises scientists representing nine nations. It has met annually in the form of the BIOMASS Working Party on Bird Ecology for the last eight years and is not expected to meet biennially under the auspices of SCAR. The main archiving operations overseen by the Group are the Central Databank for Antarctic Bird Banding and the register of Antarctic Color Banding Operations (both held at the Percy FitzPatrick Institute, University of Cape Town) and the records of seabird at-sea data from the BIOMASS FIBEX and SIBEX operations (held in the BIOMASS Data Centre in Cambridge). The main current projects overseen by the Group are:

- A. The International Survey of Antarctic Seabirds, which concentrates on penguins, and for which a review of coverage over the last eight years is being prepared.
- B. Compilation of mass data on Antarctic seabirds.
- C. A multinational project to study Giant Petrel dispersal to be conducted in 1987-88.
- D. Promotion of satellite remote sensing for locating and estimating the area of Antarctic penguin colonies.

Role of IOC Standing Committee on Seabirds

Three main roles for the Committee were identified:

- A. Communication liaison: Promoting exchange of information on IOC seabird-related activities, with a special reference to areas lacking seabird groups.
- B. Providing a forum for discussion/action on specific problems and issues: Four examples were mentioned:
 - 1. Directory of researchers - to incorporate species' groups, subjects, and geographic areas interest
 - 2. Seabird bibliographies
 - 3. Manuals of methods and techniques
 - 4. Coordination of seabird-at-sea methods
- C. Providing a means whereby suggestions for IOC symposia and other meetings relevant to seabirds can be passed to the Scientific Programme Committee of IOC and organizing bodies of other avian groups.

Structure and activities of the IOC Standing Committee on Seabirds

The following arrangements were made:

- A. Working groups:
 - 1. Seabirds at-sea: coordination of methodologies. R. Abrams was asked to see if support still existed for convening a workshop and/or establishing a working group on this topic. A report to the chairman will follow.
 - 2. Bibliographies. It was noted that this topic would fit better under the aegis of IOC than ICBP. M. Coulter was invited to act as the convener on behalf of the informal group established at the ICBP meeting and to report back to the Standing Committee as appropriate.
 - 3. Technological innovations and seabird research. There was considerable support for synthesizing information on this topic. G. L. Hunt was asked to try to initiate this process and report back to the Standing Committee.

- B. Communication: The chairman was asked to try to ensure that the record of this meeting appeared in the newsletters of all seabird groups.
- C. Seabird meetings at XXth IOC: It was agreed that the chairman should prepare a brief notice to be inserted into seabird group newsletters to:
 - 1. draw attention to the venue and timing of the next IOC,
 - 2. present the Committee's initial ideas on topics relating to seabirds that might form part of the program of this IOC, and
 - 3. solicit comments on these and other suggestions from seabird researchers to be sent to the chairman who would collate and circulate these to members of the Committee and eventually forward an agreed-upon digest to the Scientific Programme Committee of IOC.

The following preliminary proposals were made for the XXth IOC:

- A. Round-table discussions
 - 1. Taxonomy and nomenclature
 - 2. Current seabird research
- B. Workshops
 - 1. Census techniques
- C. Symposium
 - 1. Energy and activity budgets and patterns of seabirds at-sea: techniques, equipment, and results.

Membership of the Standing Committee on Seabirds

Dr. V. Zubakin (USSR) and Prof. Wei-Shu Hsu (People's Republic of China) were elected. The chairman, Dr. D. N. Nettleship, was reelected to serve another term.

Other business

- A. Color-banding operations: The Secretary raised, on behalf of J. C. Coulson, the problems occurring owing to the proliferation of color-banding operations. This was agreed to be a considerable problem and not susceptible of ready control or coordination. As a first step, it was suggested that seabird groups should seek to establish lists of the groups and individuals currently using bands on seabirds in order that the magnitude of present problems can be assessed.
- B. Submissions to the Committee: Prof. N. Kuroda submitted a provisional classification of subject areas of seabird study and a list of manuals that could be initiated to enhance the effectiveness of seabird researches worldwide. The submission is intended for future reference by all seabird workers and is presented in Appendix II.

Next meeting of the IOC Standing Committee on Seabirds

The Committee would meet during the XXth IOC in Christchurch, New Zealand, November 1990.

J. P. Croxall, Secretary
D. N. Nettleship, Chairman

APPENDIX I. MEMBERS OF THE IOC STANDING COMMITTEE FOR THE COORDINATION OF SEABIRD RESEARCH

Peter H. Becker, West Germany	Christain V. Jouanin, France
W. R. P. Bourne, United Kingdom	Warren B. King, U.S.A.
Richard G. B. Brown, Canada	Nagahisa Kuroda, Japan
Paul A. Buckley, U.S.A.	J. L. Mougin, France
John Cooper, South Africa	David N. Nettleship, Canada
John C. Coulson, United Kingdom	Christopher J. R. Robertson, New Zealand
John P. Croxall, United Kingdom	Roberto P. Schlatter, Chile
Pierre Devillers, Belgium	Ralph W. Schreiber, U.S.A.
Peter G. H. Evans, United Kingdom	W. Roy Siegfried, South Africa
Alexandre N. Golovkin, U.S.S.R.	Kees Vermeer, Canada
Joseph R. Jehl, Jr. U.S.A.	George E. Watson, U.S.A.
Gavin W. Johnstone, Australia	Wei-Shu Hsu, People's Republic of China

APPENDIX II. RECOMMENDATIONS FOR A PROVISIONAL CLASSIFICATION OF SUBJECT AREAS OF SEABIRD STUDY AND PRACTICAL MANUALS, SUBMITTED BY N. KURODA

A. Areas of seabird study: a provisional classification

1. Basic biological study

- a. breeding biology (land-based study)
- b. pelagic range and migration (at-sea study)
- c. metabolic analysis (at-sea and laboratory study)
- d. foraging and social behavior (at-sea study)
- e. bio-ecosystem of seabird colonies
- f. biomass estimation

2. Marine-ecological study

- a. population dynamics (breeding and wintering)
- b. food webs and marine ecosystems
- c. bio-oceanography (correlations of currents, winds, temperatures, salinity, ocean bottom topography, and upwelling phenomena)
- d. mortality survey (causes, aging and nutritional analysis, and accidental records)
- e. migration (routes, energy expenditure, in relation to flight types and oceanic factors)

3. Special study (techniques)

- a. flight aerodynamics (by wing and flight types)
- b. diving adaptations (in relation to flight)
- c. functional morpho-anatomy
- d. stomach oil chemicals and function
- e. saltwater metabolism (salt glands, etc.)
- f. pathology and parasites (including mallophaga)
- g. banding researches
- h. at-sea attraction (baiting lighting, etc.), catching and marking techniques
- i. radio-telemetry and radar-detection
- j. aerial and satellite surveys

4. Taxonomy and evolutionary synthesis

5. Applied and conservations study

- a. habitat (breeding) destruction and improvement (also artificial provision)
- b. fishing nest problems and provision of excess food source (by fishing and traveling ships)
- c. oil and chemical pollution of the sea
- d. human impact (egg, feather, and chick collection for food and other utilization)
- e. predator and introduced noxious animal control
- f. seabirds as fishery indicators
- g. landbirds at sea (ships as landing, resting, feeding, and transport media)
- h. endangered species surveys

B. Practical Manuals

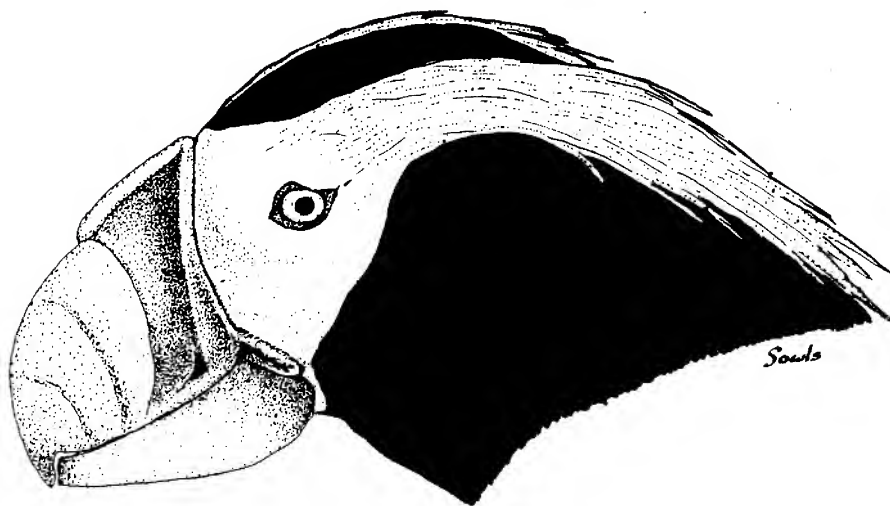
1. Manual of oceanographical data

- a. World manual of:
 - 1) seasonal oceanic winds and currents
 - 2) seasonal air and water temperatures
 - 3) main upwelling sea-areas
 - 4) ocean depth and bottom topography
- b. manual for weather, clouds, sight, waves, water color, salinity, etc.
- c. manual of oceanic study map formula with:
 - 1) divisions of ocean parts
 - 2) coding by oceanic grid of five degrees latitude and longitude
- d. manual for plankton netting and key-fish angling

2. Manual of pelagic studies

- a. manual of seabird migration patterns
- b. manual of pelagic census method (census sheet formula, etc.)
- c. list of world species of seabirds, with permanent numbering (based on definition of "seabirds")
- d. manual of species identification (with body weight, wing span, length and other measurements, color of soft parts)

- e. manual for aging and nutritional index for mortality analysis
 - f. manual of pelagic baiting, catching, banding, marking, attaching telemeter, radar use, and other techniques
3. Manual of breeding studies
- a. manual of breeding (colony) types by taxa
 - b. manual of breeding seasons by oceanic regions, latitudes, islands, and species
 - c. manual of colony analysis: size, density, and structure
 - d. manual of burrow nest survey method (auto-recording, underground observation, etc.)
 - e. manual of egg weight (weight change rate by incubation) and temperature recording, chick weighing (change by time after feeding, etc.)
4. Manual for conservation
- a. World seabird numbers (by taxonomic groups and oceanic zones, and by colonies, etc.)
 - b. world distribution of seabird colonies and their sizes
 - c. world patterns of seabird migration and movements
 - d. world history and present status of fishery and seabird correlations
 - e. world history and present status of human impact on eggs, feathers, and chicks
5. Bibliography



**XIX INTERNATIONAL ORNITHOLOGICAL CONGRESS, OTTAWA, ONTARIO, CANADA,
22-28 JUNE 1986**

General Papers

At the XIX International Ornithological Congress, there were over 70 papers and posters concerning seabirds in various parts of the world. Below are the titles, authors, and addresses of the first authors on these papers.

RELATIONSHIPS BETWEEN SEABIRDS AND MESO-SCALE HYDROGRAPHIC FEATURES IN THE AGULHAS CURRENT RETROFLECTION REGION. R. W. Abrams (Percy FitzPatrick Inst. of African Ornithology, Univ. of Cape Town, Rondebosch 7700, South Africa) and J. R. E. Lutjeharms.

ENSO EFFECTS ON PACIFIC OCEAN MARINE BIRD POPULATIONS. D. Ainley (Point Reyes Bird Observatory, 4990 Shoreline Highway, Stinson Beach, CA 94970), D. W. Anderson, K. T. Briggs, M. C. Coulter, F. Cruz, J. Cruz, S. Fefer, S. A. Hatch, G. Merlen, E. A. Schreiber, R. W. Schreiber, N. G. Smith, and C. A. Valle.

COOPERATIVE FORAGING IN THE AMERICAN WHITE PELICAN. J. G. T. Anderson (Dept. of Zoology, Univ. of Rhode Island, Kingston, R.I. 02881).

FUNCTIONAL MORPHOLOGY OF THE SHOULDER JOINT IN PENGUINS. R. Bannasch (Vertebrate Research Station, Acad. Sci. GDR, DDR-1136 Berlin, Am Tierpark 125) and H. Oehme.

DEVELOPMENT OF HOMEOTHERMY IN CHICKS OF THE ANTARCTIC PETREL (*THALASSIOCA ANTARCTICA*). C. Bech (Dept. Zoology, Univ. of Trondheim, N-7000 Trondheim, Norway), F. Mehlum, and S. Haftorn.

ECOLOGY OF NORTH AMERICAN COMMON TERNS AND ELEGANT TERNS WINTERING ALONG THE COAST OF SOUTHERN PERU. H. Blokpoel (Can. Wildl. Serv., Ottawa, Ontario K1A 0E7, Canada) and R. A. Hughes.

BREEDING COLONIES OF FULMAR OF ANADYR GULF. L. S. Bogoslovskaya (Inst. Evol. Morph. and Ecol. of Animals, Leninsky pr., 33, Moscow, U.S.S.R., 117071).

BIRDS OF THE SOUTH ATLANTIC OCEAN. W. R. P. Bourne (Dept. of Zoology, Univ. of Aberdeen, Tillydrone Ave., Aberdeen AB9 2TN, Scotland, U.K.).

IMPORTANCE OF ICE EDGES TO HIGH ARCTIC SEABIRDS. M. S. W. Bradstreet (LGL Ltd. P. O. Box 457, King City, Ontario L0G 1K0, Canada).

DISTRIBUTION AND FEEDING OF TWO ALCIDS (CASSIN'S AUKLET AND COMMON MURRE) IN RELATION TO CENTRAL CALIFORNIA UPWELLINGS. K. T. Briggs (Inst. of Marine Sciences, Univ. of California, Santa Cruz, CA 95064), D. G. Ainley, L. B. Spear, P. B. Adams, and S. M. Smith.

ZOOPLANKTON 'PATCHINESS' AND SEABIRD DISTRIBUTIONS. R. G. B. Brown (Can. Wildl. Serv., P. O. Box 1006, Dartmouth, Nova Scotia B2Y 4A2, Canada).

RATIOS OF HATCHLING AND ADULT MASS-INDEPENDENT METABOLISM: A PHYSIOLOGICAL INDEX TO THE ALTRICIAL-PRECOCIAL CONTINUUM. T. L. Bucher (Dept. of Biology, Univ. of California, Los Angeles, CA 90024).

EFFECTS OF AGE ON AVIAN BEHAVIOR. J. Burger (Dept. of Biological Sciences, Rutgers Univ. Piscataway, NJ 08854) and J. B. Nelson.

TERRITORIALITY IN LARIDS. J. Burger (Dept. of Biological Sciences, Rutgers Univ., Piscataway, NJ 08854).

WINTER STARVATION IN THE KING PENGUIN. Y. Cherel (LERP, CNRS, 23 Rue Becquerel, 67087 Strasbourg, France) and Y. Le Maho.

PLASMA MELATONIN LEVELS IN ADELIE PENGUINS AT CAPE BIRD, ANTARCTICA. J. F. Cockrem (Ecology Division, DSIR, Private Bag, Lower Hutt, New Zealand) and L. S. Davis.

FORAGING ENERGETICS OF GREY-HEADED ALBATROSSES *DIOMEDEA CHRYSOSTOMA* AT BIRD ISLAND, SOUTH GEORGIA. D. P. Costa (Inst. of Marine Sciences, Univ. of California, Santa Cruz, CA 95064) and P. A. Prince.

LIFE-TIME REPRODUCTIVE SUCCESS IN THE KITTIWAKE GULL. J. C. Coulson (Dept. of Zoology, Univ. of Durham, Durham DH1 3LE, England, U.K.).

ASPECTS OF THE COMPARATIVE POPULATION DYNAMICS OF POLAR SEABIRDS. J. P. Corxall (British Antarctic Survey, NERC, Madingley Rd., Cambridge CB3 0ET, England, U.K.) and A. J. Gaston.

SOCIAL BEHAVIOUR AND DEMOGRAPHY IN A SPECIES BREEDING COLONIALY: THE KITTIWAKE. E. Danchin (CNRS CRPBO, 55 Rue Boffon, 75005 Paris, France) and J. Y. Monnat.

PARENT-OFFSPRING CONFLICT IN THE PELECANIFORMS. H. Drummond (Depto. Ecologia, Inst. Biologia, UNAM, AP 70-153, 04510, D.F., Mexico).

THE EFFECT OF ENSO ON BIRDS IN THE ATLANTIC OCEAN COMPARED TO THE PERUVIAN UPWELLING ECOSYSTEM. D. C. Duffy (Percy FitzPatric Inst. of African Ornithology, Univ. of Cape Town, Rondebosch 7700, South Africa), W. E. Arntz, P. D. Boersma, R. L. Norton, and H. Tovar S.

THE AGE STRUCTURE OF THE NEWFOUNDLAND THICK-BILLED MURRE HARVEST. R. D. Elliot (Can. Wildl. Serv., Box 9158, St. John's, Newfoundland A1A 2X9, Canada) and A. J. Gaston.

OSMOREGULATION BY PELAGIC SEABIRDS. T. Erasmus (Zoology Dept., Univ. Port Elizabeth, POB 1600, Port Elizabeth, South Africa) and D. H. Thomas.

ASPECTS OF THE CONDITIONS OF WINTERING COMMON TERNS IN THE CARIBBEAN. R. M. Erwin (Patuxant Wildl. Res. Center, USFWS, Laurel, MD 20708), G. J. Smith, and R. B. Clapp.

PARENTAL ENERGY EXPENDITURES OF FREE-RANGING NORTHERN GANNETS AND COMMON MURRES. V. L. Friesen (Newfoundland Inst. for Cold Ocean Science, Memorial University, St. John's, Newfoundland A1B 3X9, Canada), D. K. Cairns, S. Macko, and W. A. Montevecchi.

EFFECTS OF ENERGY CONSTRAINTS ON SEABIRDS BREEDING AT HIGH LATITUDES. R. W. Furness (Dept. of Zoology, Univ. of Glasgow, Glasgow G12 800, Scotland, U.K.) and A. E. Burger.

ENERGY EXPENDITURE OF FREE RANGING BLACK-LEGGED KITTIWAKES (*RISSA TRIDACTYLA*). G. W. Gabrielsen (Norwegian Polar Research Inst., P. O. Box 158, N-1330 Oslo Lufthaven, Norway), F. Mehlum, and K. A. Nagy.

MOULT PHYSIOLOGY AND ENDOCRINOLOGY IN THE EMPEROR PENGUIN (*APTENODYTES FORSTERI*). R. Groscolas (Lab. Physiol. Anim. Nutri., Univ. Dijon, BP 138, 21004 Dijon, France).

ENDOCRINE CONTROL OF REPRODUCTION IN MALE AND FEMALE EMPEROR PENGUINS. R. Groscolas (Lab. Physiol. Anim. Nutri., Univ. Dijon, BP 138, 21004 Dijon, France), M. Jallageas, J. Leloup, and A. Goldsmith.

INFLUENCES OF GULF STREAM EDDIES ON SEABIRDS. J. C. Haney (Dept. of Zoology, Univ. of Georgia, Athens, GA 30602).

REMOTE SENSING OF MARINE ENVIRONMENTS AND APPLICATIONS TO ECOLOGICAL STUDIES OF SEABIRDS. J. C. Haney (Dept. of Zoology, Univ. of Georgia, Athens, GA 30602).

REPRODUCTIVE ENDOCRINOLOGY OF ALBATROSSES. J. A. L. Hector (British Antarctic Survey, NERC, Madingley Rd., Cambridge CB3 0ET, England, U.K.), J. P. Croxall, B. K. Follett, and P. A. Prince.

SEABIRDS OF HIGH-LATITUDE AND NORTHERN AND SOUTHERN ENVIRONMENTS. G. L. Hunt, Jr. (Dept. of Ecology and Evolutionary Biology, Univ. of California, Irvine, CA 92717) and D. N. Nettleship.

WINTER PREDATION OF KING PENGUIN CHICKS BY GIANT PETRELS AT MARION ISLAND. S. Hunter (Percy FitzPatrick Inst. of African Ornithology, Univ. of Cape Town, Rondebosch 7700, South Africa).

INDIVIDUAL RECOGNITION OF PARENT'S CALLS BY ANCIENT MURRELET CHICKS. I. L. Jones (Dept. of Zoology, Univ. of Toronto, Toronto, Ontario M5S 1A1, Canada) and J. B. Falls.

THE DEMOGRAPHIC STRATEGIES OF SOUTHERN ALBATROSSES. P. Jouventin (CEBAS-CNRS, 79360 Beauvoir sur Niort, France) and H. Weimerskirch.

CLASSIFICATION OF OCEAN BIRD COMMUNITIES IN NORTH PACIFIC. U. Kawai (Fac. Agr., Tokyo Noko Univ., Fuchu, Tokyo, Japan), N. Maruyama, N. Oka, and N. Kuroda.

DIVERSITY OF BIRD COMMUNITY IN THE NAKDONG ESTUARY AND RIVER IN KOREA. K. Ki-Chung (Dept. of Biology, Univ. Dong-A, Pusan, Korea 600-02).

POST-FLEDGING DISPERSAL IN THREE LARUS SPECIES. M. Kilpi (Zoology Museum, Univ. of Helsinki, P. Rautatiekatu 13 SF-00100 Finland) and P. Saurola.

PELAGIC DISTRIBUTIONS OF LAYSAN AND BLACK-FOOTED ALBATROSSES. N. Kuroda (Yamashina Inst. Orn., Konoyama, Abiko, Chiba Pref., Japan).

THE PENGUINS AS INDICATORS OF CHLORINATED HYDROCARBONS POLLUTION IN ANTARCTIC ECOSYSTEMS. A. E. Lukowski (Dept. of Zoology and Ecology, Univ. Warszawa, Warszawa, Krokowskie Przedmiescie 26/28, Poland).

COMPARATIVE STUDIES OF EYE STRUCTURE AND VISUAL FIELDS IN BIRDS. B. R. Martin (Dept. Zoology and Comparative Physiology, Univ. of Birmingham, P. O. Box 363, Birmingham B15 2TT, England, U.K.).

MIGRATION ROUTE OF SHORT-TAILED SHEARWATERS IN NORTH PACIFIC. N. Maruyama (Fac. Agr., Tokyo Noko Univ., Fuchu, Tokyo, Japan), N. Oka, Y. Watabe, N. Kuroda, and I. Skira.

THE NON-BREEDING ELEMENT OF A RED-BILLED GULL POPULATION. J. A. Mills (New Zealand Wildl. Serv., Dept. of Internal Affairs, Wellington, New Zealand).

DEMOGRAPHY AND SOCIAL BEHAVIOUR IN A SPECIES BREEDING COLONIALY: THE KITTIWAKE. J. Y. Monnat (Laboratoire de Zoologie, Faculte des Sciences, Brest Cedex, France) and E. Danchin.

NATURAL SELECTION AND BODY SIZE IN HERRING GULLS. P. Monaghan (Dept. of Zoology, Univ. of Glasgow, Glasgow G12 8QQ, Scotland, U.K.) and N. B. Metcalfe.

WHAT NORTHERN GANNET CHICKS CAN TELL FISHERMEN ABOUT FISHING CONDITIONS IN NEWFOUNDLAND, CANADA. W. A. Montevecchi (Newfoundland Inst. for Cold Ocean Science, Memorial Univ., St. John's Newfoundland A1B 3X9, Canada).

PARENT-OFFSPRING CONFLICTS IN COMMON TERNS: THE TACTICS OF TIME-DEPENDENT WINNING. R. D. Morris (Dept. of Biosciences, Brock Univ., St. Catharines, Ontario L2S 3A1, Canada).

EVOLUTION OF CLUTCH SIZE IN SEABIRDS. B. G. Murray, Jr. (Dept. of Biological Sciences, Rutgers Univ., New Brunswick, NJ 08903).

AGE AND BREEDING IN SEABIRDS. J. B. Nelson (Dept. of Zoology, Univ. of Aberdeen, Tillydrone Ave., Aberdeen AB9 2TN, Scotland, U.K.).

REPRODUCTIVE BIOLOGY OF SEABIRDS AT HIGH LATITUDES: AN INTERHEMISPHERIC COMPARISON. D. N. Nettleship (Can. Wildl. Serv., Bedford Inst. of Oceanography, P. O. Box 1006, Dartmouth, Nova Scotia B2Y 4A2, Canada) and G. L. Hunt, Jr.

BODY SIZE, ENERGY UTILIZATION, AND DIET IN ANTARCTIC PROCELLARIIFORMS AND PENGUINS. B. S. Obst (Dept. of Biology, Univ. of California, Los Angeles, CA 90024).

NUTRITIONAL ANALYSIS OF MASS MORTALITY OF SHORT-TAILED SHEARWATERS ALONG JAPAN. N. Oka (Yamashina Inst. Orn., Konoyama, Abiko, Chiba Pref., Japan), N. Maruyama, A. Suzuki, and N. Kuroda.

HORMONAL REGULATION OF MOLTING IN BLACK-HEADED GULLS. P. Peczely (Lab. of Geese Biochem., Univ. Agric., Godollo, Hungary).

RECRUITMENT TO THE BREEDING GROUP IN KITTIWAKES. J. M. Porter (Dept. of Zoology, Univ. of Durham, Durham DH1 3LE, England, U.K.).

PATTERNS OF FOOD AND FEEDING IN SEABIRD COMMUNITIES IN THE TWO HEMISPHERES. P. A. Prince (British Antarctic Survey, NERC, Madingley Rd., Cambridge CB3 0ET, England, U.K.) and M. P. Harris.

WHICH WANDERING ALBATROSS DID LINNEAUS DESCRIBE? C. J. R. Robertson (New Zealand Wildlife Serv., Private Bag, Wellington, New Zealand).

SEABIRD PATCHINESS IN A TURBULENT MARINE ENVIRONMENT. D. C. Schneider (Newfoundland Inst. for Cold Ocean Science, Memorial Univ., St. John's, Newfoundland A1B 3X9, Canada) and R. G. B. Brown.

CROSS-SHELF GRADIENTS IN THE ABUNDANCE OF PELAGIC BIRDS. D. C. Schneider (Newfoundland Inst. for Cold Ocean Science, Memorial Univ., St. John's, Newfoundland A1B 3X9, Canada), D. C. Duffy, and G. L. Hunt, Jr.

BIRDS AND THE EL NINO-SOUTHERN OSCILLATION. R. W. Schreiber (Natural History Museum, 900 Exposition Blvd., Los Angeles, CA 90007) and E. A. Schreiber.

A COMPARISON OF BODY-SIZE SCALE BETWEEN ANTARCTIC AND ARCTIC BIRDS. W. R. Siegfried (Percy FitzPatrick Inst. of African Ornithology, Univ. of Cape Town, Rondebosch 7700, South Africa) and S. Sealy.

FOSSIL BIRDS AND BIOGEOGRAPHY ON OCEANIC ISLANDS. D. W. Steadman (New York State Museum, Albany, NY 12230).

MORPHOLOGY AND FEEDING HABITS OF TWO CLOSELY RELATED, SYMPATRIC GULLS, *LARUS HEMPRICHII* AND *L. LEUCOPHTHALMUS*. R. W. Storer (Museum of Zoology, Univ. of Michigan, Ann Arbor, MI 48109) and S. M. Goodman.

FORAGING BEHAVIOR OF GENTOO AND CHINSTRAP PENGUINS AS DETERMINED BY NEW RADIO TELEMTRY TECHNIQUES. W. Z. Trivelpiece (Point Reyes Bird Observatory, 4990 Shoreline Highway, Stinson Beach, CA 94970), J. L. Bengtson, S. G. Trivelpiece, and N. J. Volkman.

ASSORTATIVE MATING IN THE LITTLE GULL. J. Veen (Zoological Laboratory, Univ. of Groningen, Postbus 14, 9750 AA Haren (Gr.), The Netherlands).

THE INFLUENCE OF HYDROGRAPHIC FRONTS UPON THE DISTRIBUTION OF FORAGING BIRDS IN THE SCOTIA SEA, ANTARCTIC. R. R. Veit (Dept. of Ecology and Evolutionary Biology, Univ. of California, Irvine, CA 92717).

FACTORS CONTRIBUTION TO REPRODUCTIVE SUCCESS IN SHORT-TAILED SHEARWATERS. R. D. Wooller (Biological Sciences, Murdoch Univ., Western Australia 6150), J. S. Bradley, D. L. Serventy, and I. J. Skira.

Round Table Discussions

The following Round Table Discussions were held and chaired by the individuals listed below:

SYSTEMATIQUE DES OISEAUX DE MER. P. Devillers (Rue Vautier 29, Bruxelles, Belgique 1150).

FRONTS AND FRONTAL PROCESSES IN THE MARINE ENVIRONMENT OF SEABIRDS. J. C. Haney (Dept. of Zoology, Univ. of Georgia, Athens, GA 30602).

BIRDS AND THE EL NINO-SOUTHERN OSCILLATION. R. W. Schreiber (Natural History Museum, 900 Exposition Blvd., Los Angeles, CA 90007).

NEW PUBLICATIONS

Cuello, J. P. 1985. Lista de Referencia y Bibliografia de las Aves Uruguayas. Museo Damaso Antonio Larranaga, Montevideo. Serie de Divulgacion 1985, No. 1. 116 pp.

This nice little book is written in Spanish. It contains a list of the birds of Uruguay, divided into two parts. There is a list of species whose occurrence in the country has been documented and a list of species whose presence needs to be confirmed. Scientific as well as Spanish Common Names are presented. It also contains a bibliography of literature dealing with Uruguayan birds. This is a nice introduction to a part of the ornithological literature with which many of us are unfamiliar. Those wishing more information may contact the author at: Dr. J. P. Cuello, Museo Damaso Antonio Larranaga, Rambla Republica de Chile 4215, Montevideo, Uruguay.

Malcolm C. Coulter

BULLETIN BOARD

North Sea Forum

A number of voluntary and statutory environmental organizations in Britain, including the Seabird Group, have gathered together to form the North Sea Forum whose ultimate aim is to brief UK ministers prior to the Ministerial Conference on the North Sea in November 1987. The Seabird Group has been contacted for help in identifying seabird species threatened by pollution, etc., and to recommend appropriate measures.

This follows from an international conference hosted by the government of the Federal Republic of Germany in Bremen in October/November 1984. The aims of that meeting were to achieve progress on a number of issues, including Special Area status for the North Sea and a general ban on dumping.

Arising from this, the government of the United Kingdom announced that Britain would host a further conference in November 1987. The purposes of the upcoming meetings will be to review the state of the sea, to identify problems, their causes and solutions, and to review scientific studies by international bodies.

The North Sea Forum was formed to enable environmental organizations to make an early contribution to briefing ministers. Working groups have been set up to examine species, habitats, and human impacts.

Request for audiovisual materials from the U.S. National Agricultural Library

The U.S. National Agricultural Library (NAL) contains the largest agricultural library in the free world and has a comprehensive collection of publications relating to agriculture in a variety of formats and languages. Recently, NAL has revised its collection development policy to incorporate the acquisition of audiovisual materials in all areas of agriculture. Agriculture is defined broadly and includes such areas as ocean harvesting, fishing, sea ranching, etc. The NAL has requested that PSG and its membership contribute audiovisual materials to its collection. Materials that are acquired will be included in a number of printed and on-line bibliographic sources such as OCLC, AGRICOLA, AGRIS, and AGRINDIX. If you would like to contribute, please contact Pamela R. Mason, Audiovisual Coordinator, Acquisitions Branch, Room 112, Technical Services Division, National Agricultural Library, U.S. Department of Agriculture, Beltsville, MD 20705.

Skull morphology of gulls and skuas in the Western Palearctic

Dr. Kompanje and Dr. Post have been studying the morphology of skulls of gulls and skuas from the Western Palearctic. The object of their work is to be able to determine the species, subspecies, and sex of birds from skull measurements. They are interested in exchanging or borrowing museum specimens. If you have material that can be lent to them or exchanged with them, please contact them at the Royal Rotterdam Zoo and Botanical Garden, van Aerssenlaan 49, 3039 Rotterdam, Holland.

Breeding phenology of Common Murres on Triangle Island, British Columbia, in 1980 and 1981

Little information exists on the timing of breeding of Common Murres (*Uria aalge*) in British Columbia. Only about 6,050 birds are known to breed in the province; 6,000 of these birds nest on Triangle Island. During studies of the nesting biology of Tufted Puffins (*Lunda cirrhata*) on Triangle Island in 1980-82, A. J. Vallee noted major phenological events of breeding Common Murres. Her untimely death on the island in July 1982 prompted H. R. Carter to excerpt this information which she had provided in a letter dated 21 January 1982 (Table 1). She noted further that "we were trying to minimize disturbance near the murre ledges and were almost avoiding to go there until the chick-rearing period. So these are only circumstantial observations and represent very approximate dates." Data for the chick period probably are most exact. In August 1981, she also spent much time observing Thick-billed Murres (*U. lomvia*) breeding amongst Common Murres.

Table 1. Major phenological events of breeding Common Murres at Triangle Island.

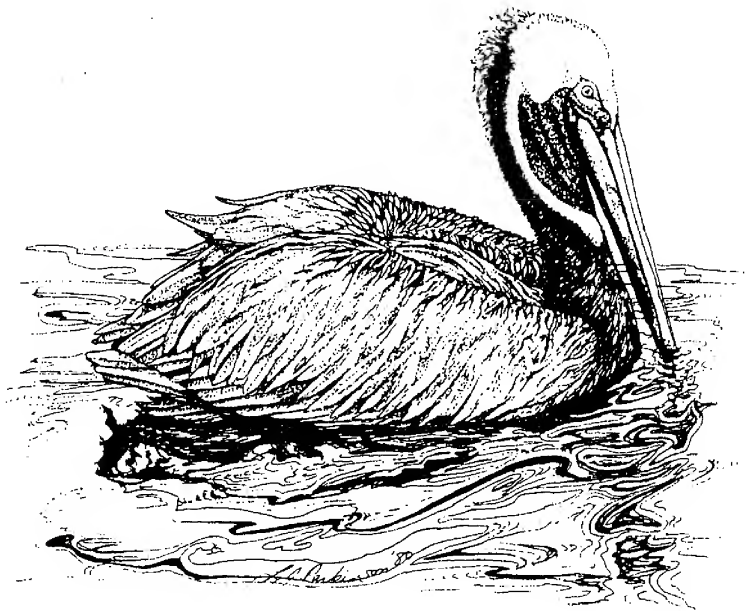
Event	1980	1981
First eggs seen on the slopes (broken shells: gull predation?)	15 June	24 June
Bulk of egg laying	25-30 June	-
First chicks seen (small size)	18 August	17 August ¹
Young seen leaving with adult (during afternoon)	1 September	-
First big departure of murres and chicks from the cliffs	8 September	2-5 September
Vallee departed island (still very few murres and chicks on ledges)	17 September	15 September

¹ On 24 July 1980, a gull robbed a murre carrying a fish in its bill. No chicks could be seen.

Anne J. Vallee and Harry S. Carter

Our October 1985 Newsletter reported the inauguration of a bilateral agreement between RSPB/ICBP and the Ghana Government to increase protection for Ghana's coastal sites and shorebirds. Two initial surveys have now been conducted, the first in November 1985, in which SBG Secretary took part, and the second in January 1986. The entire coastline of some 800 km was surveyed on both occasions to locate and count concentrations of seabirds and waders. The following results may give a flavor of what anyone might expect to see in a country which supports a rich community of wintering palearctic migrants. Among skuas, Pomarines are not uncommon, Artics less so, both finding rich pickings by harrying terns around the sardine boats. In keeping with a general increase in the region, several Black-headed Gulls were seen but, apart from isolated concentrations of the Scandinavian race of Lesser Black-backed Gulls, the Larids are poorly represented. We did, however, pick up two immature Little Gulls, the first records for Ghana, which can be added to one for Sierra Leone, five for Nigeria, and one for Angola. Grey-headed Gulls are scarce in Ghana, and we recorded only three. We never got offshore but know from previous expeditions that Sabine's Gulls occur in small numbers there, as do Madeiran Storm-petrels. In the tern line, the major interest was in Roseates. Only one roost, of about 70, was located, underlining the beleaguered status of this most elegant of European terns. The flock included two birds ringed as chicks on Anglesey in 1985. On each survey, about 1,500 Royal Terns were counted. Considering that their point of origin (the Banc d'Arguin off Mauritania) is thought to hold some 5,000 pairs, the importance of the Gulf of Guinea as a wintering area (and perhaps Ghana in particular) is abundantly clear. Two Lesser Crested Terns were only the fourth and fifth records for Ghana, while a Noddy (probably *Anous stolidus*) was only the second Ghanaian record. Though not strictly seabirds, two pairs of Shelduck provided a remarkable record for Ghana, only compromised slightly when we discovered a previous record for South Africa! Clearly, much of the seabird action lies offshore, and future survey work aims to pay more attention to the Gulf itself where the terns (with no breeding colonies to constrain them) spend most of their time in winter.

Euan Dunn



Sri Lanka: Seabird Watch

This is to introduce the Seabird Watch (SW), an organization founded in 1981 to study and document the activities of Sri Lanka's seabirds and also to promote their conservation. As presently constituted, the SW functions as a small informal group of serious seabird observers. The group's founder, Rex I. De Silva, currently functions as the Project Coordinator.

The SW has successfully carried out several studies on seabirds, including an important project on the annual mass migration of Bridled Terns *Sterna anaethetus*; this is still continuing. (A report on the first four years' results will appear shortly in IBIS.) Several short papers by SW members have appeared in LORIS, the journal of the Wildlife Protection Society of Ceylon.

The SW wishes to correspond and exchange views and information with other seabird organizations and interested parties. All correspondence will be replied to promptly. Visiting ornithologists are especially invited to contact the group for information and assistance, which will be freely rendered.

Serious seabird observers are invited to join (there are no dues), and applications should be forwarded to the Project Coordinator, whose address appears below. The SW is presently in the process of accumulating a library and equipment bank, and donations of books and equipment will be gratefully received. (Urgent needs include Harrison's *Seabirds of the World* and binoculars, preferably Pentax 8 x 40).

The SW intends to publish a quarterly bulletin in the near future, which will be distributed free.

Address all correspondence to: Rex I. De Siiva, Project Coordinator, Seabird Watch, Hepporawatte, Dampe, Madapatha, (Piliyandala), Sri Lanka. Telephone: (office hours only) 26611-9, Ext. 332.

Tis-ki-ta private biological reserve, Costa Rica

Tis-ki-ta private biological reserve was recently established in southern Costa Rica. It includes over 400 acres of untouched rain forest and is located on the Pacific coast. Two cabins, holding up to seven people, are available. If you are interested in visiting the reserve, contact Peter Aspinall, Tis-ki-ta Lodge, P. O. Box 91, 8201 Golfito, Costa Rica.



Seabird Group Third International Conference, Cambridge, England, 12-14 February 1988

The Seabird Group will hold a third international conference at the Leys School in Cambridge, England, from 12 to 14 February 1988. The theme of the conference will be "Seabird food and feeding ecology." They hope to devote two full sessions to this theme (treated in its broadest sense), have a third session for contributions on any aspect of seabird biology and leave plenty of time for people to view poster papers and meet informally. They also hope to organize a workshop for Monday, 15 February, to deal with "Remote-recording and measuring devices and techniques for use with seabirds." If interested, please contact as soon as possible: Dr. J. P. Croxall, Seabird Group, The Lodge, Sandy, Beds., SG19 2DL, United Kingdom.



XX INTERNATIONAL ORNITHOLOGICAL CONGRESS 1990

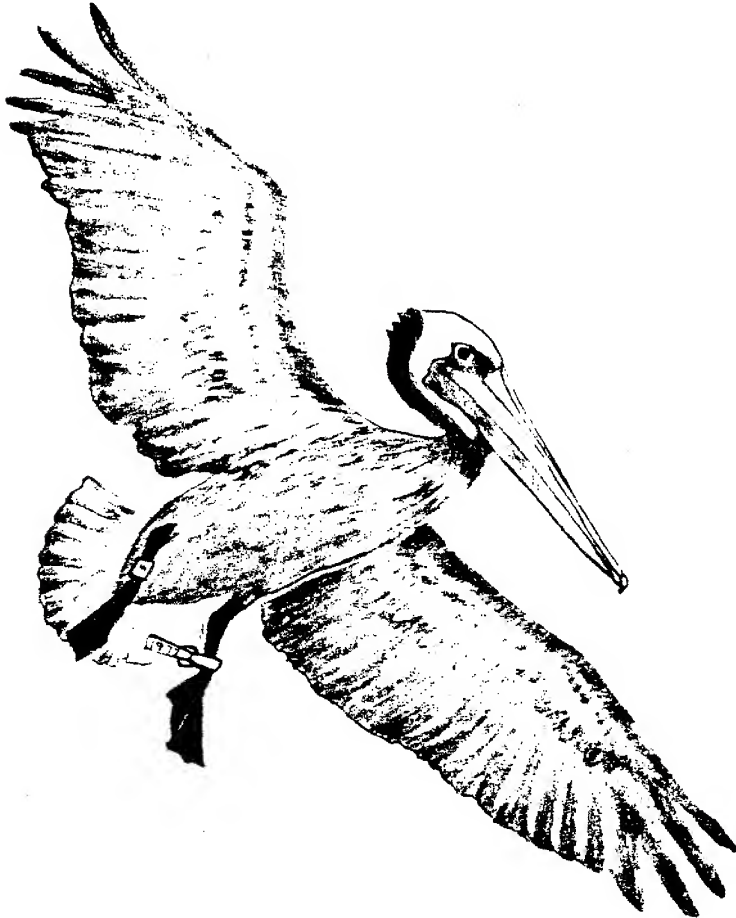
Preliminary Notice No. 1

The XX International Ornithological Congress will take place in Christchurch, New Zealand, from 2-9 December 1990. Professor Charles G. Sibley (USA) is President and Dr Ben D. Bell (NZ) is Secretary-General. The anticipated Congress programme will include plenary lectures, symposia, contributed papers (spoken and posters), workshops, discussion groups and films. There will be a mid-Congress excursion day. Pre- and post-Congress excursions are planned to interesting ornithological sites in New Zealand and adjacent regions. Requests for the First Circular and suggestions regarding Congress organisation should be addressed to:

**Dr Ben D. Bell,
Secretary-General,
XX International Ornithological Congress,
Department of Zoology,
Victoria University of Wellington,
Private Bag, Wellington,
NEW ZEALAND.**

COLOR-MARKED BROWN PELICANS

You are being asked to cooperate in studies of the California brown pelican by reporting your sightings of banded and tagged birds to UCD researchers. Brown pelicans have been leg-tagged to study their movements, migrations, and interactions with man. The tags vary from plain aluminum bands to bands plus plastic leg markers of various colors. Each configuration has a meaning, so a good, accurate description of what is seen yields the most information. If you see one or more of these birds, please report the following information:



- 1) the configuration (what is on what leg),
- 2) the color (and number if possible),
- 3) the date and location of sighting,
- 4) the situation,
- 5) any other comments you'd like to make that might be important (was the bird sick or injured, was it being a nuisance, etc.),
- 6) your name and address.

Please do not remove the tags or bands unless the bird is dead. If the bird is sick or injured and captured, notify the nearest DFG warden. If the bird is hooked, remove the hook and line carefully so as not to injure the bird or rip the skin or pouch. If the hook is imbedded in the skin, push the barb through the skin, cut it off, then back the cut hook out. If the bird is dead, we'd appreciate the tags back so we can check them for wear and longevity. We will inform you of the bird's origins, age, etc., so send your sightings to:

PELICAN RESEARCH PROJECT
Dept. of Wildlife and Fisheries
University of California
Davis, California 95616

Your help will be much appreciated.